User Guide - English

FUJITSU

FUJITSU Software ServerView Suite

Remote Management

iRMC S4 - integrated Remote Management Controller

Edition August 2015

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Certified documentation according to DIN EN ISO 9001:2008

To ensure a consistently high quality standard and user-friendliness, this documentation was created to meet the regulations of a quality management system which complies with the requirements of the standard DIN EN ISO 9001:2008.

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Contents

1 Preface 13

1.1 Purpose and target groups of the manual 15
1.2 Functions of the iRMC S4 (overview) 16
1.3 User interfaces of the iRMC S4 23
1.4 Font panel LEDs controlled by the iRMC 24
1.5 Communication protocols used by the iRMC 25
1.6 IPMI - technical background 26
1.7 DCMI (Data Center Management Interface) 33
1.8 Changes since the previous versions of the manual 34
1.9 ServerView Suite link collection 35
1.10 Documentation for ServerView Suite 36
1.11 Notational conventions 37

2 Logging on to the iRMC S4 for the first time 39

2.1 Requirements 39
2.2 iRMC S4 factory defaults 40
2.3 Logging into the iRMC S4 web interface 41

3 Configuring the iRMC S4 43

3.1 Configuring the LAN interface of the iRMC S4 43
3.1.1 Prerequisites 44
3.1.1.1 Connected to the correct LAN port? 44
3.1.1.2 Interaction between the IP addresses of the iRMC and the system 45
3.1.1.3 Access from a different subnet 45
3.1.2 Configuring the LAN interface: Configuration tools 45
3.1.3 Configuring the LAN interface using the UEFI setup utility . . . 46
3.1.4 Testing the LAN interface 47

3.2 Configuring text console redirection via LAN using the UEFI setup utility . . . 48
3.2.1 Configuring text console redirection for the iRMC S4 . . . 49
3.2.2 Using console redirection while the operating system is running . 51

3.3 Configuring and using the serial interface of the iRMC S4 . . 53
3.3.1 Configuring the serial interface using of the iRMC S4 . . . 53
3.3.2 Using the Remote Manager (Serial) interface . . . 55

3.4 Configuring the iRMC S4 over the iRMC S4 web interface . . 56
3.4.1 Configuring the LAN parameters . . . 56
3.4.2 Configuring alerting . . . 57
3.4.3 Configuring text console redirection . . . 57

4 User management for the iRMC S4 . . . 59

4.1 User management concept for the iRMC . . . 60

4.2 User permissions . . . 62

4.3 Local user management for the iRMC S4 . . . 64
4.3.1 Local user management using the iRMC S4 web interface . . . 64
4.3.2 Local user management via the Server Configuration Manager . 65
4.3.3 SSHv2 public key authentication for iRMC S4 users . . . 66
4.3.3.1 Creating public and private SSHv2 keys . . . 67
4.3.3.2 Loading the public SSHv2 key onto the iRMC from a file . . . 71
4.3.3.3 Configuring PuTTY and the OpenSSH client for using the public SSHv2 key . . . 73
4.3.3.4 Example: Public SSHv2 key . . . 78

5 Advanced Video Redirection (AVR) . . . 79

5.1 Requirements: Check the AVR settings . . . 80

5.2 Using AVR via a Java Applet . . . 82
5.2.1 AVR window . . . 82
5.2.2 Using a low bandwidth . . . 83
5.2.3 Parallel AVR sessions . . . 83
5.2.4 "Local Monitor Off Control" function . . . 86
5.2.5 Redirecting the keyboard . . . 87
5.2.6 Redirecting the mouse . . . 89

5.2.7 Menus and toolbar of the AVR window 90
5.2.7.1 Video menu 91
5.2.7.2 AVR window - Keyboard menu 94
5.2.7.3 AVR window - Mouse menu 99
5.2.7.4 AVR window - Options menu 100
5.2.7.5 AVR window - Media menu 102
5.2.7.6 AVR window - Power Control menu 102
5.2.7.7 AVR window - Active Users menu 105
5.2.7.8 AVR window - Help menu 105
5.2.7.9 AVR Tool bar 106

5.3 Using AVR via HTML5 109

6 Virtual Media Wizard 111

6.1 Provision of virtual media at the remote workstation 112
6.1.1 Starting Virtual Media wizard 113
6.1.2 Virtual Media dialog box 114
6.1.3 Provision of storage media for virtual media 116
6.1.4 Clearing Virtual Media connections 119

7 iRMC web interface 121

7.1 Logging into the iRMC web interface 122

7.2 Required user permissions 124

7.3 Structure of the user interface 130

7.4 System Information - Information on the server 133
7.4.1 System Overview - General information on the server 134
7.4.2 System Component Information - Information on the server components 139
7.4.3 AIS Connect - Configuring and using AIS Connect 142
7.4.4 System Report 147
7.4.5 CPU Utilization History 149
7.4.6 Network Inventory 151
7.4.7 Driver Monitor 152

7.5 RAID Information - Information on the RAID systems 153
7.5.1 RAID Controller - Information on RAID controllers and associated batteries 154
7.5.2 Enclosures - Information on RAID enclosures 156
7.5.3 Physical Disks - Information on RAID physical disks 160
7.5.4 Logical Drives - Information on RAID logical drives 162

7.6 BIOS - Backing up/restore BIOS settings, flashing BIOS . . 164
7.6.1 Backup/Restoration - Saving/Restoring BIOS single parameter settings to/from a file 164
7.6.1.1 Backup BIOS Single Parameters in ServerView® WinSCU XML format 165
7.6.1.2 Restoration BIOS Single Parameters in ServerView® WinSCU XML format 166
7.6.2 BIOS - Updating BIOS via "upload from file" or via TFTP . . . 168

7.7 iRMC S4 - Information, firmware and certificates 173
7.7.1 iRMC S4 Information - Information on the iRMC 174
7.7.2 iRMC S4 Time - Time options for the iRMC S4 178
7.7.3 Save Configuration - Save iRMC S4 Firmware Settings 181
7.7.4 Certificate Upload - Load the DSA/RSA Certificate and private DSA/RSA Key 183
7.7.5 Generate a self-signed Certificate - Generate self-signed RSA Certificate 190
7.7.6 iRMC S4 Firmware Update 192

7.8 Power Management 197
7.8.1 Power On/Off - power the server up/down 198
7.8.2 Power Options - Configuring power management for the server 203
7.8.3 Power Supply Info - Power supply and IDPROM data for the FRU components 206

7.9 Power Consumption 207
7.9.1 Power Consumption Configuration - Configure power consumption of the server 208
7.9.2 Current Power Consumption - Show the current power consumption 214
7.9.3 Power History - Show server power consumption 215

7.10 Sensors - Check status of the sensors 219
7.10.1 Fans - Check fans 220
7.10.2 Temperature - Report the temperature of the server components . . 222
7.10.3 Voltages - Report voltage sensor information 224
7.10.4 Power Supply - Check power supply 225
7.10.5 Component Status - Check status of the server components 227

7.11 System Event Log and Internal Event Log 231
7.11.1 System Event Log Content - Show information on the SEL and the SEL entries 232
7.11.2 Internal Event Log - Show information on the internal event log and the associated entries 235
7.11.3 System Event Log Configuration - Configure IPMI SEL and internal event log 238
7.11.4 Syslog Configuration - configure syslog forwarding for SEL and internal event log 241

7.12 Server Management Information - Configuring the server settings 245

7.13 Network Settings - Configure the LAN parameters 250
7.13.1 Network Interface Settings - Configure Ethernet settings on the iRMC 251
7.13.2 Ports and Network Services - Configuring ports and network services 258
7.13.3 Proxy Settings - Configuring proxy settings 262
7.13.4 DNS Configuration - Configuring DNS for the iRMC 264
7.13.5 SNMP Generic Configuration 268

7.14 Alerting - Configure alerting 270
7.14.1 SNMP Trap Alerting - Configure SNMP trap alerting 271
7.14.2 Email Alerting - Configure email alerting 273

7.15 User Management 280
7.15.1 iRMC S4 User - local user management on the iRMC 280
7.15.1.1 New User Configuration - Configuring a new user 282
7.15.1.2 User “<name>” Configuration - User configuration (details) . 283

7.15.2 Directory Service Configuration (LDAP) - Configuring the directory service at the iRMC 294
7.15.2.1 Standard LDAP groups with authorization settings on the iRMC S4 297
7.15.2.2 Configuring iRMC for Microsoft Active Directory 302
7.15.2.3 Configuring iRMC for Novell eDirectory / OpenLDAP / OpenDS / Open DJ 307
7.15.3 Centralized Authentication Service (CAS) Configuration - Configuring the CAS Service 313

7.16 Console Redirection - Redirecting the console 319
7.16.1 BIOS Text Console - Configure and start text console redirection 319
7.16.1.1 BIOS Console Redirection Options - Configure text console redirection 320
7.16.1.2 Text console redirection while the operating system is running . 322
7.16.2 Advanced Video Redirection - Start Advanced Video Redirection (AVR) 324

7.17 Virtual Media 332
7.17.1 Virtual Media Options - Configuring virtual media options . . . 333
7.17.2 Remote Image Mount - connecting remote ISO images 335

7.18 Lifecycle Management 339
7.18.1 Update Settings - Configuring general eLCM update settings . 340
7.18.2 Online Update - Configuring the eLCM online update 341
7.18.3 Offline Update - Configuring the eLCM offline update 346
7.18.4 Custom Image - Handling custom images 352
7.18.5 PrimeCollect - Health management 356

8 iRMC S4 via Telnet/SSH (Remote Manager) 359

8.1 Requirements on the managed server 360

8.2 Operating Remote Manager 361

8.3 Overview of menus 362

8.4 Logging in 365

8.5 Main menu of the Remote Manager 367

8.6 Required user permissions 369

8.7 Change the password 371
8.8 System Information - Information on the managed server 371
8.9 Power Management 373
8.10 Enclosure Information - System event log and status of the sensors 374
8.11 Service processor - IP parameters, identification LED and iRMC S4 reset 378
8.12 RAID Management 379
8.13 Console Redirection (EMS/SAC) - Start text console redirection 380
8.14 Start a Command Line shell... - Start a SMASH CLP shell 380
8.15 Console Logging - Redirect message output to the text console (serial) 381
8.16 Command Line Protocol (CLP) 383

9 Configuring iRMC S4 using the Server Configuration Manager 387

9.1 Calling the Server Configuration Manager from the ServerView Installation Manager 389
9.2 Calling the Server Configuration Manager from the Windows Start menu 389
9.3 Calling the Server Configuration Manager from the Operations Manager 391

10 Firmware update 395

10.1 iRMC S4 firmware (overview) 396
10.2 Setting up the USB memory stick 398
10.3 Updating firmware images 401
10.3.1 Update via the iRMC web interface 401
10.3.2 Update using the ServerView Update Manager 402

10.3.3 Online update using ServerView Update Manager Express or ASP 402
10.3.4 Update using the operating system flash tools 403
10.3.5 Update via the FlashDisk menu 405
10.4 Emergency flash 407
10.5 Flash tools 408

11 Remote installation of the operating system via iRMC S4 . 413

11.1 Installing the operating system via iRMC S4 - general procedure 414
11.2 Connecting a storage medium as Virtual Media 416
11.3 Booting the managed server from ServerView Suite DVD 1 and configuring it with the Installation Manager 418
11.4 Installing the operating system on the managed server after configuration 421
11.4.1 Installing Windows on the managed server after configuration . 421
11.4.2 Installing Linux on the managed server after configuration . . . 423

12 Appendix 425

12.1 IPMI OEM Commands supported by the iRMC 425
12.1.1 Overview 425
12.1.2 Description of the IPMI OEM commands 427
12.1.2.1 Description format 427
12.1.2.2 SCCI-compliant Power On/Off commands 428
12.1.2.3 SCCI-compliant communication commands 433
12.1.2.4 SCCI-compliant signaling command 435
12.1.2.5 Firmware-specific commands 436
12.1.2.6 BIOS-specific commands 440
12.1.2.7 iRMC S4-specific commands 442
12.2 Configuring the iRMC via SCCI and scripted configuration 452
12.2.1 iRMC configuration data 452
12.2.1.1 Overview 452
12.2.1.2 SCCI file format 454
12.2.1.3 Restrictions 458
12.2.1.4 Exporting / importing configuration data from / on the iRMC S4 459

12.2.2 Scripted configuration of the iRMC 460
12.2.2.1 List of SCCI commands supported by the iRMC 460
12.2.2.2 Scripting with cURL 461
12.2.2.3 Scripting with Visual Basic (VB) Script 462
12.2.2.4 Scripting with Python 463
12.2.2.5 Generating encrypted passwords with iRMC_PWD.exe . . . 464

12.3 iRMC system report 467
12.3.1 Scripted download and automatic evaluation of the iRMC report . . 467
12.3.1.1 Scripting with cURL 467
12.3.1.2 Scripting with Visual Basic 468
12.3.2 Information Sections 469
12.3.2.1 List of supported System Report sections in the XML 469
12.3.2.2 Summary section 469
12.3.2.3 BIOS 470
12.3.2.4 Processor 471
12.3.2.5 Memory 471
12.3.2.6 Fans 472
12.3.2.7 Temperature 472
12.3.2.8 Power Supplies 473
12.3.2.9 Voltages 473
12.3.2.10 IDPROMS 474
12.3.2.11 SensorDataRecords 474
12.3.2.12 PCIDevices 474
12.3.2.13 SystemEventLog 474
12.3.2.14 InternalEventLog 475
12.3.2.15 BootStatus 475
12.3.2.16 ManagementControllers 476

1 Preface

Modern server systems are becoming increasingly complex. The requirements with respect to the management of such systems are growing accordingly.

In response to this development, a number of vendors founded the “Intelligent Platform Management Interface” (IPMI) initiative with the objective of defining a standardized, abstract, message-based interface between the central system controller (Baseboard Management Controller - BMC) and intelligent hardware for platform management. For further details on IPMI, please refer to section "IPMI - technical background" on page 26.

The **i**ntegrated **R**emote **M**anagement **C**ontroller iRMC represents a BMC with integrated LAN connection and extended functionality. In this way, the iRMC offers comprehensive control over PRIMERGY servers, irrespective of the system status. In particular, the iRMC allows for out-of-band management (Lights Out Management, LOM) of PRIMERGY servers. Out-of-band management uses of a dedicated management channel that enables a system administrator to monitor and manage servers via remote control regardless of whether the server is powered on.

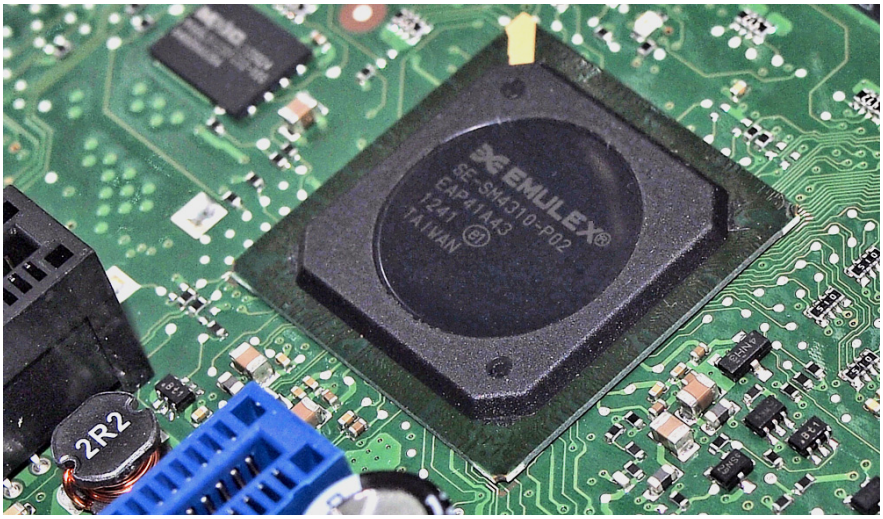


Figure 1: iRMC S4 on the system board of a PRIMERGY server

As an autonomous system on the system board of a modern PRIMERGY server, the iRMC has its own operating system, its own web server, separate user management and independent alert management. The iRMC remains powered up even when the server is in stand-by mode.

Beyond making it possible to manage a PRIMERGY server out-of-band, the enhanced functionality of the newest version of the iRMC, which comes with an integrated SD card, allows for comprehensive lifecycle management of a PRIMERGY server. As life cycle management is largely integrated ("embedded") in and entirely controlled by the iRMC, it is called "embedded Life Cycle Management (eLCM)".

Some eLCM functions require the iRMC to communicate and cooperate with the ServerView Agentless Service running on the managed server. Communicating with the ServerView Agentless Service also provides the iRMC S4 with additional in-band information.

This manual describes how to configure the iRMC and the various user interfaces available.

1.1 Purpose and target groups of the manual

This manual is aimed at system administrators, network administrators, and service staff who have a sound knowledge of hardware and software. It provides basic information on the technology behind IPMI and deals with the following aspects in detail:

- Logging on to the iRMC
- Configuring the iRMC
- User management on the iRMC
- Advanced Video Redirection via iRMC
- Virtual Media via iRMC
- iRMC web interface
- Telnet/SSH-based interface (Remote Manager) of the iRMC
- Configuring the iRMC with the Server Configuration Manager
- Updating the firmware
- Remote installation of the operating system via iRMC
- Appendix IPMI OEM Commands
  - IPMI OEM Commands
  - Configuring the iRMC via SCCI and scripted configuration

Service

If you have any further questions on remote management for PRIMERGY servers, contact the service and support partners responsible for you.

Other information

http://www.ts.fujitsu.com

1.2 Functions of the iRMC S4 (overview)

The iRMC supports a wide range of functions that are provided by default. With Advanced Video Redirection (AVR) and Virtual Media, the iRMC also provides two additional advanced features for the remote management of PRIMERGY servers. To use AVR, virtual Media and embedded Lifecycle Management (eLCM), you require a valid license key, which can be purchased separately.

Standard functions of the iRMC S4

- Browser access

  The iRMC features its own web server which can be accessed by the management station from a standard web browser.

- Security (SSL, SSH)

  Secure access to the Web server and secure graphical console redirection including mouse and keyboard can be provided over HTTPS/SSL. An encrypted connection protected using SSH mechanisms can be set up to access the iRMC using the Remote Manager. The Remote Manager is an alphanumeric user interface for the iRMC.

- ServerView Integration

  The ServerView agents detect the iRMC and automatically assign it to the relevant server. This means that it is possible to start the iRMC web interface and text console redirection using the ServerView Remote Management Front end directly from ServerView Operations Manager.

  Communication between the iRMC and the ServerView Agentless Service (as of ServerView Operations Manager 7.0) allows for enhanced out-of-band management of PRIMERGY servers.

- Power management

  Irrespective of the status of the system, you have the following options for powering the managed server up or down from the remote workstation

  – using the iRMC web interface
  – using the Remote Manager and the command line interface (CLP)
  – with a script.

- Power consumption control

  The iRMC allows comprehensive power consumption control on the managed server. In addition, you can specify the mode (minimum power consumption or maximum performance) that the iRMC uses to control power consumption on the managed server. You can switch between these modes as required.

- Customer Self Service (CSS)

  Summary tables for the server components, sensors and the power supply on the iRMC web interface provide information in a separate column as to whether the server component affected is a CSS component or not. In addition, error list of the system event log (SEL) shows for every event whether it has been triggered by a CSS component.

- Text console redirection

  You can start a Telnet/SSH session to the iRMC from the ServerView Remote Management Front end. This calls the Remote Manager, via which you can start a text console redirection session.

- Basic functions of a BMC

  The iRMC supports the basic functions of a BMC such as voltage monitoring, event logging and recovery control.

- “Headless” system operation

  The managed server does not require a mouse, monitor or keyboard to be connected. The benefits of this include lower costs, far simpler cabling in the rack and increased security.

- Identification LED

  To facilitate identification of the system, for instance if it is installed in a fully populated rack, you can activate the identification LED from the iRMC web interface.

- Global error LED

  A global error LED informs you of the status of the managed system at all times and at the same time shows the CSS (Customer Self Service) status.

- Power LED

  The power LED informs you whether the server is currently switched on or off.

- S5 LED

  The S5 LED informs you on the power status of the server.

- CIM support

  The iRMC supports CIM-XML, WS-Man, and SMASH CLP (**S**ystem **M**anagement **A**rchitecture for **S**erver **H**ardware **C**ommand **L**ine **P**rotocol).

- LAN

  On some systems, the LAN interface of the fitted system NIC (Network Interface Card) on the server is reserved for the management LAN. On other systems, you have the option of configuring this LAN interface to

  – reserve it for the management LAN
  – set it up for shared operation with the system or
  – make it completely available to the system.

  The ports marked with a wrench symbol are assigned to the iRMC (see figure 7 on page 44).

- Network Bonding

  Network bonding for the iRMC is designed for redundancy in the event of Ethernet network adapter failures. Thus, iRMC network management traffic is protected from loss of service which occurs due to failure of a single physical link.

  The iRMC supports the active-backup mode, i. e. one port is active until the link fails, then the other port takes over the MAC and becomes active.

- SNMPv1/v2c/v3 support

  You can configure an SNMP service on the iRMC which supports SNMPv1/v2c/v3 GET requests on SNMP SC2 MIB (Sc2.mib), SNMP MIB-2, SNMP OS.MIB, and SNMP STATUS.MIB.

  When the SNMP service is enabled, information on devices such as fans, temperature sensors etc. are available via the SNMP protocol and can be viewed on any system running an SNMP Manager.

- Command line interface (CLP)

  In addition to the Remote Manager, the iRMC also supports SMASH CLP as standardized by the DMTF (Distributed Management Task Force).

- Simple configuration - interactive or script-based

  The following tools are available for configuring the iRMC:

  – iRMC web interface
  – Server Configuration Manager
  – UEFI BIOS Setup

  It is also possible to carry out configuration with the Server Configuration Manager or IPMIVIEW using scripts. This means that it is possible to configure the iRMC when the server is first configured via ServerView Installation Manager. It is also possible to configure a large number of servers on the basis of scripts.

- Support for the LocalView service panel

  If PRIMERGY servers are equipped with a ServerView local service panel, this module allows you to determine what module is faulty and whether you can replace the faulty module yourself.

- Local user management

  The iRMC has its own user management function which allows up to 16 users to be created with passwords and to be assigned various rights depending on the user groups they belong to.

- Global user management using a directory service

  The global user IDs for the iRMC are stored centrally in the directory service's directory. This makes it possible to manage the user identifications on a central server. They can therefore be used by all the iRMCs that are connected to this server in the network.

  The following directory services are currently supported for iRMC user management:

  – Microsoft® Active Directory
  – Novell® eDirectory
  – OpenLDAP
  – OpenDS

- CAS-based single sign-on (SSO) authentication

  The iRMC supports Centralized Authentication Service (CAS) configuration, which allows you to configure the iRMC web interface for CAS-based single sign-on (SSO) authentication.

The first time a user logs in to an application (e.g. the iRMC web interface) within the SSO domain of the CAS service, they are prompted for their credentials by the CAS-specific login screen. Once they have been successfully authenticated by the CAS service, the user is granted access to the iRMC web interface as well as to any other service within the SSO domain without being prompted for login credentials again.

- DNS / DHCP

  The iRMC provides support for automatic network configuration. It has a default name and DHCP support is set by default so that the iRMC S4 gets its IP address from the DHCP server. The iRMC name is registered by the Domain Name System (DNS). Up to five DNS servers are supported. If DNS/DHCP is not available, the iRMC also supports static IP addresses.

- Power supply

  The iRMC is powered by the standby supply of the system.

- Alert management

  The alert management facility of the iRMC provides the following options for forwarding alerts (alerting):

  – Platform Event Traps (PET) are sent via SNMP.
  – Direct alerting by email.

  In addition, the iRMC provides the ServerView agents with all the relevant information.

- Read, filter and save the system event log (SEL).

  You can view, save and delete the contents of the SEL

  – by using the iRMC web interface or

  – by using the Telnet/SSH-based interface (Remote Manager) of the iRMC S4.

- Read, filter and save the internal event log (iEL).

  You can view, save and delete the contents of the iEL

  – by using the iRMC web interface or

  – by using the Telnet/SSH-based interface (Remote Manager) of the iRMC S4.

- UEFI support

  Unified Extensible Firmware Interface (UEFI) is a specification for a software program that connects a computer's firmware to its operating system. UEFI has a firmware validation process, called secure boot. Secure boot defines how platform firmware manages security certificates, validation of firmware, and a definition of the interface (protocol) between firmware and the operating system.

Extended functionality of the iRMC S4

Alongside the standard functionality, the iRMC also supports the Advanced Video Redirection, Virtual Media functions, and embedded Lifecycle Management (eLCM).

- Advanced Video Redirection (AVR)

  The iRMC supports Advanced Video Redirection which offers the following benefits:

  – Operation over a standard web browser. No additional software needs to be installed in the management station other than the Java Runtime Environment.

  – System-independent graphical and text console redirection (including mouse and keyboard).

  – Remote access for boot monitoring, BIOS administration and operation of the operating system.

  – AVR supports up to two simultaneous “virtual connections” for working on a server from a different location. It also reduces the load on the network by using hardware and video compression.

  – Local monitor-off support: It is possible to power down the local screen of the managed PRIMERGY server during an AVR session in order to prevent unauthorized persons from observing user input and actions carried out on the local server screen during the AVR session.

  – Low bandwidth

    In the case of a reduced data transfer rate, you can configure a lower bandwidth (bits per pixel, bpp) in terms of color depth for your current AVR session.

- Virtual Media

  The Virtual Media functionality makes a “virtual” drive available which is physically located on a remote workstation or made available centrally on the network using the *Remote Image Mount* functionality.

  The “virtual” drives available with Virtual Media are simply managed in much the same way as local drives and offer the following options:

  – Read and write data.
  – Boot from Virtual Media.
  – Install drivers and small applications.
  – Update BIOS from remote workstation.
    (BIOS update via USB)

  Virtual Media supports the following device types to provide a “virtual drive” on the remote workstation:

  – CD ROM
  – DVD ROM
  – Memory stick
  – Floppy image
  – CD ISO image
  – DVD ISO image
  – Physical Harddisk Drive
  – HDD ISO image

  The *Remote Image Mount* functionality provides ISO images centrally on a network share in the form of a “virtual drive”.

- Embedded Lifecycle Management (eLCM)

  The embedded Lifecycle Management (eLCM) solution allows you to control lifecycle management of PRIMERGY servers with a few mouse clicks centrally from the iRMC web interface without the need of handling with physical devices.

  eLCM comprises the following functions:

  – eLCM update management

  – eLCM image management (Custom Image)

  – eLCM health management (PrimeCollect)

  For details see the manual "ServerView embedded Lifecycle Management (eLCM)".

1.3 User interfaces of the iRMC S4

The iRMC provides the following communication interfaces:

- **iRMC S4 web interface (web interface)**

  The connection to the iRMC web server is established over a standard web browser (e.g. Microsoft Internet Explorer, Mozilla Firefox).

  Among other things, the web interface of the iRMC provides you with access to all system information and data from the sensors such as fan speeds, voltages, etc. You can also configure text-based console redirection and start graphical console redirection (Advanced Video Redirection, AVR). In addition, administrators can fully configure the iRMC over the web interface. Secure access to the iRMC web server can be provided with HTTPS/SSL.

  Operation of the iRMC over the web interface is described in chapter "iRMC web interface" on page 121.

- **Remote Manager: Text-based Telnet/SSH interface via LAN**

  You can call the Remote Manager

  – from the ServerView Remote Management Frontend,
  – directly from a Telnet/SSH client.

  The alphanumeric user interface of the Remote Manager provides you with access to system and sensor information, power management functions and the error event log. In addition, you can launch text console redirection or a SMASH CLP shell. If you call the Remote Manager over SSH (Secure Shell), the connection between the Remote Manager and the managed server is encrypted.

  Operation of the iRMC using the Remote Manager is described in chapter "iRMC S4 via Telnet/SSH (Remote Manager)" on page 359.

- **Remote Manager (Serial): Text-based serial interface over Serial 1**

  The Remote Manager (serial) interface is identical to the Remote Manager interface.

1.4 Font panel LEDs controlled by the iRMC

The iRMC controls the status LEDs which are located on the front panel of the server. The LEDs and the layout of how they are arranged differ depending on the server type.

Status LEDs on the front panel (Nexperience design):

Status of the Server	LED on the Server	
	S5 LED (green)	Power LED (green)
AC-OFF	off	off
S5 (shutdown)	on	off
S0 (power on)	off	on
S3 (sleep mode)	off	blinking with 1Hz (BIOS controlled)
iRMC not ready	on	blinking with 0,5 Hz (iRMC controlled)
Power-on Delay	on	on

Status LEDs on the front panel (legacy design):

Status of the Server	Power LED on the Server
AC-OFF	off
S5 (shutdown)	orange
S0 (power on)	green
S3 (sleep state)	blinking green with 1Hz (BIOS controlled)
iRMC not ready	blinking alternately in orange/green with 1 Hz (iRMC controlled)
Power-on Delay	yellow

1.5 Communication protocols used by the iRMC

The communication protocols and ports used by the iRMC are shown in table 1.

Remote side of the connection	Communication direction	iRMC side of the connection (port no. / protocol)	Configurable	Enabled by default
RMCP	→	623/UDP	no	yes
	←	623/UDP		
HTTP port	→	80/TCP	yes	yes
	←	80/TCP		
HTTPs port	→	443/TCP	yes	yes
	←	443/TCP		
Telnet	→	3172/TCP	yes	no
	←	3172/TCP		
SSH	→	22/TCP	yes	yes
	←	22/TCP		
SNMP (general mess.)	→	161/UDP	no	no
	←	161/UDP		
SNMP Trap	→	162/UDP	no	yes
LDAP	→	389/TCP/UDP	yes	no
	←	389/TCP/UDP		
LDAP SSL	→	636/TCP/UDP	yes	no
	←	636/TCP/UDP		
Email / SMTP	→	25/TCP	yes	no
	←	25/TCP		
CIM	→	5988/CIM-XML		
	←	5989/CIM-XML		
	→	80/WS-MAN		
	←	80/WS-MAN		

Table 1: Communication protocols and ports used by the iRMC

1.6 IPMI - technical background

The iRMC makes the BMC functions available over the IPMI interface.

Intelligent Platform Management

The “Intelligent Platform Management” initiative is a response to the increasing complexity of modern server systems. A number of manufacturers have joined this initiative in order to come up with a new solution for monitoring these server systems.

The term “Intelligent Platform Management” expresses the core aspect of this approach to the solution: Functions for monitoring and recovery of systems are implemented directly in the hardware and firmware for platform management.

Objective

The objective was to define a standardized, abstract and message-based interface between the central system controller (Baseboard Management Controller - BMC) and intelligent platform management hardware.

The standardization committees combined the central characteristics of various platform management modules into standardized descriptions.

Definition

The IPMI specification defines:

“IPMI is a hardware level interface specification that is ‘management software neutral’ providing monitoring and control functions that can be exposed through standard management software interfaces such as DMI, WMI, CIM, SNMP, etc. As a hardware level interface, it sits at the bottom of a typical management software stack” [see section "IPMI and other management standards" on page 27].

Advantage

The IPMI specifications ensure the independence of functions for inventory, logging, recovery and monitoring of a system by the system processor, BIOS or operating system.

This means that a system can still be involved in platform management when it is shut down and turned off.

IPMI and other management standards

IPMI is best used in conjunction with system management software running under the relevant operating system. Integration of the IPMI functionality into the management functionality offered by a management application and the operating system results in a powerful platform management environment.

An overview of the relationship between IPMI and the management software stack is shown by figure 2:

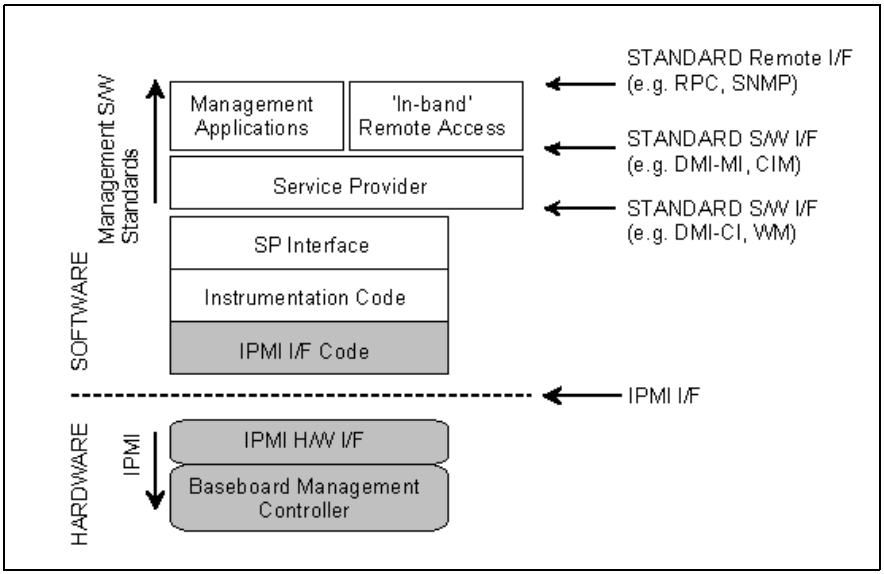


Figure 2: IPMI in the management software stack (source: IPMI specification, see section "References" on page 33)

IPMI, IPMB and ICMB

The IPMI initiative resulted in three central standards:

– *IPMI. Intelligent Platform Management Interface Specification*
describes the higher-level architecture, the current commands, event formats, data packets and properties that are used in IPMI-based systems.

– *IPMB. Intelligent Platform Management Bus*
is an I^2C based (write only) bus, which provides a standardized connection between various modules in a common housing.
IPMB can also be used as a standardized interface for remote management modules.

– *ICMB. Intelligent Chassis Management Bus*
(Not currently implemented in the ServerView remote management environment.)
provides a standardized interface for exchange of platform management information and for control across systems. ICMB is designed in such a way that it can be implemented with a device that is connected to the IPMB.

IPMI implementation

The core element of an IPMI implementation is the Baseboard Management Controller (BMC).
The BMC performs the following tasks:

– The BMC organizes the interface between the system management software and the platform management hardware.

– It provides autonomous functions for monitoring, event logging and recovery control.

– The BMC acts as a gateway between the system management software and IPMB.

IPMI allows platform management to be extended: Additional management controllers can be connected via the IPMB. The IPMB is an I^2C based serial bus, which runs between the main modules of the system. It is used for communication with and between the management controllers.

With the support of multiple management controllers, IPMI provides a scalable architecture: A complex server system can use multiple controllers for monitoring different subsystems, e.g. power supplies, hot swap RAID drive modules etc.

In addition, IPMI provides ‘low level’ I^2C commands, which can be accessed via a management controller connected to the IPMB on 'unintelligent' I^2C modules that cannot process IPMI commands.

An overview of the fundamental elements of an IPMI implementation is available in figure 3 on page 29.

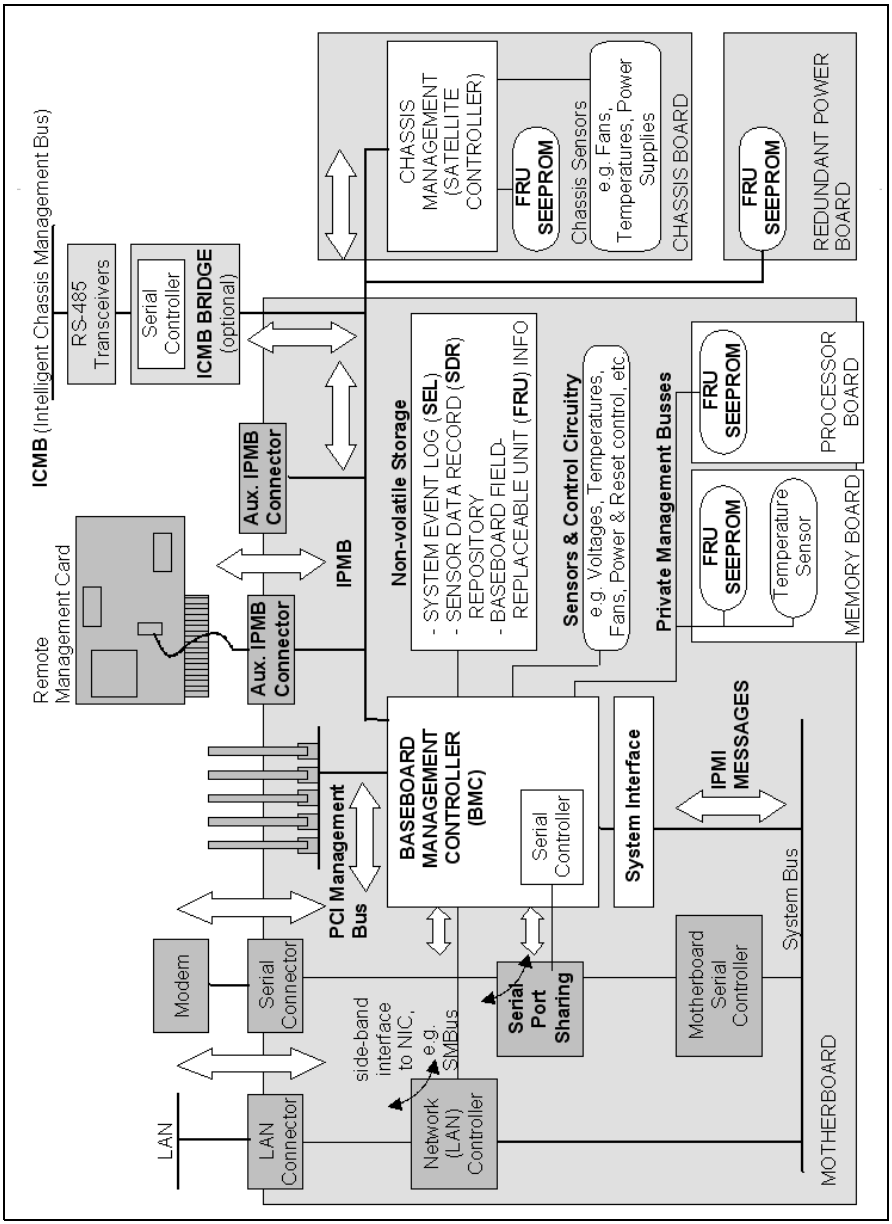


Figure 3: IPMI block diagram (source: IPMI specification, see section "References" on page 33)

IPMI and “in band” and “out of band” management

In the field of system management, a distinction is made between “in-band” and “out-of-band” management:

– The term “in-band” management is used when the operating system is running on the managed server.

– The term “out-of-band” management is used when the operating system is not running on the managed server, for instance if the hardware is faulty.

As different interfaces are available in an environment with IPMI compatible systems, you can manage IPMI compatible systems either “in band” or “out of band”.

IPMI-over-LAN

“IPMI-over-LAN” is the current name for the specification of the LAN interface in the IPMI standard. This specification stipulates how IPMI messages can be sent to or from the BMC of a managed system - encapsulated in RMCP (Remote Management Control Protocol) data packets. These RMCP data packets are transferred via an Ethernet LAN connection using the UDP (User Datagram Protocol) under IPv4 (Internet Protocol Version 4).

The RMCP protocol has been specified to support the management of system statuses in which the operating system is not running. The RMCP is a simple inquiry/response protocol.

The interface for such a connection is provided on an onboard LAN controller assigned to the BMC.

The interface can only be provided by an on-board LAN controller, not by an inserted LAN card.

Of the two ports that RCMP uses under UDP, the BMC communicates with the LAN controller via port 623 (primary RMCP Port).

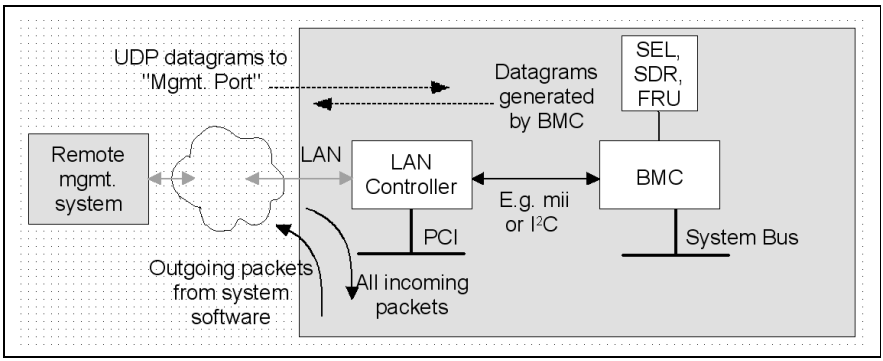


Figure 4: BMC and LAN controller

Serial Over LAN interface (SOL)

“Serial Over LAN” is an interface compliant with the IPMI V2.0 standard, which controls transfer of serial data over a LAN connection. In particular, SOL specifies the packet formats and protocols for transferring serial data streams over a LAN between the serial controller on the managed computer and a remote workstation. SOL is based on the IPMI-over-LAN specification.

In order to establish an SOL connection, a remote management application first initiates an IPMI-over-LAN session with the BMC. After this has been done, the SOL services can be activated from the remote workstation. The data traffic between the serial controller and the remote workstation is handled over the same IPMI session as the IPMI commands.

As soon as an SOL connection has been established, data transfer between the serial controller and the remote workstation is carried out as follows:

– Transfer from the serial controller to the remote workstation:
  The data stream issued by the serial controller is partitioned by the BMC, packaged and then sent to the remote workstation over the LAN.

– Transfer from the remote workstation to the serial controller:
  BMC unpacks the characters contained in the packages sent by the remote workstation and forwards them to the serial controller as a character stream.

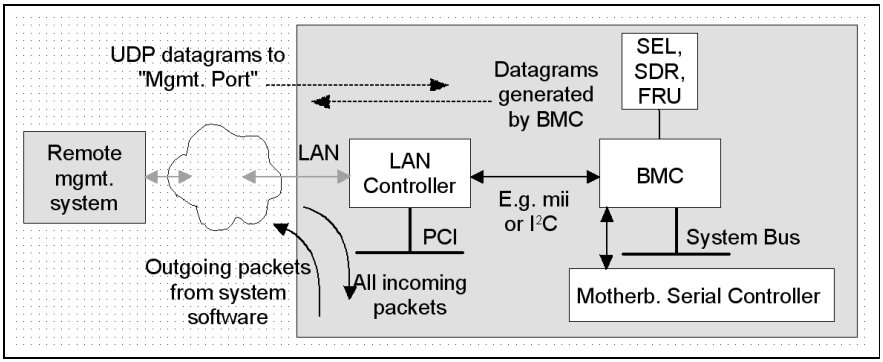


Figure 5: BMC and SOL

The SOL character data is then exchanged between the BMC of the managed system and the remote workstation as SOL messages. The SOL messages are encapsulated in RMCP+ data packets and transferred in UDP datagrams over an Ethernet LAN connection using IPv4 (Internet Protocol Version 4). The RMCP+ protocol is based on the RMCP protocol, but includes extensions for encryption, authentication, etc.

Serial over LAN permits “headless” management by console redirection by both the BIOS and the operating system of the managed server. High-cost concentrator solutions are not required.

Channel concept under IPMI

‘Channels’ provide the mechanisms with which IPMI messages are routed to the BMC via various connection carriers. Up to nine channels can be supported. The system interface and the primary IPMB are fixed. The other seven channels are available for the implementation.

Channels can be either ‘session based’ or ‘sessionless’. The ‘session’ concept has two meanings: It is either a concept for user authentication (see the section "User identifications" on page 33) or a concept for routing multiple IPMI message streams via a single channel.

Examples of ‘session based’ channels are LAN channels or serial / modem channels. Examples of ‘sessionless’ channels are the system interface and the IPMB.

User identifications

For ‘session based’ channels (see the section "Channel concept under IPMI" on page 32), a user login is necessary. By contrast, the ‘sessionless’ channels have no user authentication.

Under IPMI, the user configuration is channel specific. Thus, users can have different privileges depending on whether they are accessing the BMC via the LAN channel or the serial channel.

References

Information about the IPMI standards can be found on the Internet:

http://developer.intel.com/design/servers/ipmi/index.htm

1.7 DCMI (Data Center Management Interface)

The iRMC supports the DCMI (Data Center Management Interface) protocol, which is compliant with the IPMI V2.0 standard. DCMI has been designed to improve manageability and energy efficiency of server systems that are deployed in large data centers.

To meet the hardware management requirements of servers within data centers, DCMI supports, among others, the following key features:

– Inventory functions (server identification)
– Power Management and power monitoring
– Power consumption monitoring and control
– Event logging
– Temperature monitoring

Detailed information about DCMI can be found on the DCMI home page:

http://www.intel.com/technology/product/DCMI

1.8 Changes since the previous versions of the manual

This manual refers to the iRMC S4 **firmware version 8.0** and replaces the following online manual: “iRMC - integrated Remote Management Controller”, April 2015 edition.

The manual includes the following updates:

- iRMC web interface:
  - New redirection function via HTML5 parallel to the Java based redirection
  - New HP SIM integration
  - CIM support

    With the Common Information Model (CIM), relationship information (what's connected to what) can be used to help trace the source and status of problems.
- Extended SNMP support
- RESTful API

  REST (REpresentational State Transfer) is an architectural style, and an approach to communications that is often used in the development of Web services. When Web services use REST architecture, they are called RESTful APIs (Application Programming Interfaces) or REST APIs. REST architecture involves reading a designated Web page that contains an XML file.

1.9 ServerView Suite link collection

Via the link collection, Fujitsu Technology Solutions provides you with numerous downloads and further information on the ServerView Suite and PRIMERGY servers.

For ServerView Suite, links are offered on the following topics:

- Forum
- Service Desk
- Manuals
- Product information
- Security information
- Software downloads
- Training

The downloads include the following:

- Current software versions for the ServerView Suite as well as additional Readme files.
- Information files and update sets for system software components (BIOS, firmware, drivers, ServerView agents and ServerView update agents) for updating the PRIMERGY servers via ServerView Update Manager or for locally updating individual servers via ServerView Update Manager Express.
- The current versions of all documentation on the ServerView Suite.

You can retrieve the downloads free of charge from the Fujitsu Technology Solutions Web server.

For PRIMERGY servers, links are offered on the following topics:

- Service Desk
- Manuals
- Product information
- Spare parts catalogue

Access to the link collection

You can reach the link collection of the ServerView Suite in various ways:

1. Via ServerView Operations Manager.

   ► Select *Help – Links* on the start page or on the menu bar.

   This opens the start page of the ServerView link collection.

2. Via the start page of the online documentation for the ServerView Suite on the Fujitsu Technology Solutions manual server.

   You access the start page of the online documentation via the following link:

   http://manuals.ts.fujitsu.com

   ► In the selection list on the left, select *x86 Servers*.

   ► On the right, click *PRIMERGY ServerView Links* under *Selected documents*.

   This opens the start page of the ServerView link collection.

3. Via the ServerView Suite DVD 2.

   ► In the start window of the ServerView Suite DVD 2, select the option *Select ServerView Software Products*.

   ► Click *Start*. This takes you to the page with the software products of the ServerView Suite.

   ► On the menu bar select *Links*.

   This opens the start page of the ServerView link collection.

1.10 Documentation for ServerView Suite

The documentation for the ServerView Suite can be downloaded free of charge from the Internet. You will find the online documentation at *http://manuals.ts.fujitsu.com* under the link *x86 servers*.

1.11 Notational conventions

The meanings of the symbols used in this manual are as follows:

Warning	This symbol is used to draw attention to risks which may represent a health hazard or which may lead to data loss or damage to the hardware.
	This symbol is used to highlight important information and tips.
►	This symbol indicates an action which you must carry out.
Text in italics	In running text, commands, menu items, and the names of buttons, options, files and paths are shown in *italics*.
<text>	Indicates variables which must be replaced by current values.
`Monospaced font`	Output from the system is shown in `monospaced font`.
`Monospaced font` **`Bold monospaced font`**	Commands to be entered at the keyboard are shown in bold, monospaced font.
[square brackets]	Indicate optional entries.
{braces}	Indicate a list of alternatives separated by “|”.
Keyboard symbols	Keys are shown as they appear on the keyboard. If uppercase characters are to be entered explicitly, this is indicated for instance by SHIFT - A for A. If two keys are to be pressed simultaneously, this is indicated by a hyphen between the two keyboard symbols.

Table 2: Notational conventions

If reference is made to passages elsewhere in this manual, the title of the chapter or section is named and the page number given refers to the start of the section.

2 Logging on to the iRMC S4 for the first time

The factory default settings of the iRMC allow you to log in to the iRMC S4 for the first time without the need for any configuration activities.

2.1 Requirements

On the remote workstation:

– Windows: Internet Explorer as of Version 10.x.
Linux: Mozilla Firefox 3.x.

– For console redirection:
Sun Java Virtual Machine Version 1.6 or higher.

In your network:

– You must have a DHCP server in your network.

– If you want to log in with a symbolic name rather than an IP address at the iRMC web interface, the DHCP server in your network must be configured for dynamic DNS.

– DNS must be configured. Otherwise you must ask for the IP address.

2.2 iRMC S4 factory defaults

The firmware of the iRMC provides a default administrator ID and a default DHCP name for the iRMC.

Default administrator ID:

Administrator ID: admin

Password: admin

Both the administrator ID and the password are case-sensitive.

For reasons of security, it is recommended that you create a new administrator account once you have logged in, and then delete the default administrator account or at least change the password for the account (see section "User Management" on page 280).

Default DHCP name of the iRMC S4

The default DHCP name of the iRMC uses the following pattern:
IRMC<SerialNumber>

The serial number corresponds to the last 3 bytes of the MAC address of the iRMC. You can take the MAC address of the iRMC from the label on your PRIMERGY server.

After you have logged in, the MAC address of the iRMC can be found as a read-only entry above the fields on the page *Network Interface* (see page 251).

2.3 Logging into the iRMC S4 web interface

► Open a web browser on the remote workstation and enter the DNS name or IP address of the iRMC.

> You can take the DNS name of the iRMC from the label on your PRIMERGY server.

The following login prompt appears:

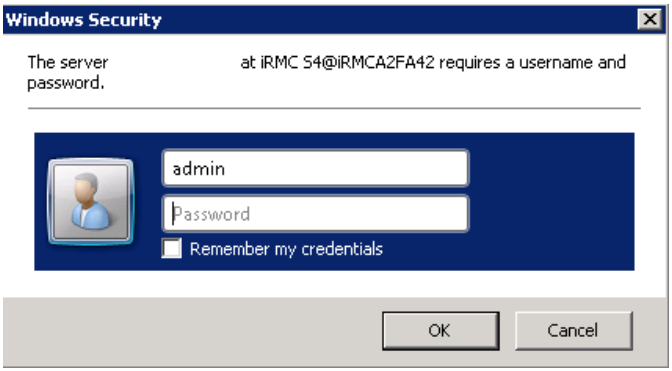


Figure 6: Login prompt for the iRMC S4 web interface

> If the login prompt does not appear, check the LAN connection (see section "Testing the LAN interface" on page 47).

► Type in the data for the default administrator account.

User name: admin

Password: admin

► Click *OK* to confirm your entries.

The iRMC web interface opens showing the *System Information page (*see page 133).

3 Configuring the iRMC S4

The following tools are available for configuring the iRMC:

– UEFI setup utility (see page 46)

– iRMC web interface (see page 121)

– Server Configuration Manager (see page 387)

This chapter provides you with information about the following topics:

– Configuring the LAN interface of the iRMC using the UEFI setup utility (see page 46).

– Configuring text console redirection via LAN using the UEFI setup utility (see page 48).

– Configuring the serial interface of the iRMC UEFI setup utility (see page 53).

– Configuring the iRMC over the web interface (for an overview, see page 56).

3.1 Configuring the LAN interface of the iRMC S4

This section describes:

– Requirements for configuring the LAN interface

– Configuring the LAN interface in the UEFI setup utility

– Testing the LAN interface

"Spanning Tree" tree for the connection of the iRMC must be deactivated (e.g. Port Fast=enabled; Fast Forwarding=enabled).

3.1.1 Prerequisites

Note the following requirements with respect to configuring the IP address:

– The LAN cable must be connected to the correct port. (see section "Connected to the correct LAN port?" on page 44).

– Interaction between the IP addresses of the iRMC and the system (see the section "Interaction between the IP addresses of the iRMC and the system" on page 45).

3.1.1.1 Connected to the correct LAN port?

The interface for a LAN connection is provided on an onboard LAN controller assigned to the iRMC (see also figure 4 on page 31).

Depending on the server type, the system board of a PRIMERGY server provides two or three LAN interfaces. The ports marked with a wrench symbol are assigned to the iRMC (in figure 7, for example, these are port 1 and the top left-hand port).

Check that the LAN cable is connected to the correct port.

Depending on the type of PRIMERGY server, different ports may be marked with the wrench symbol.

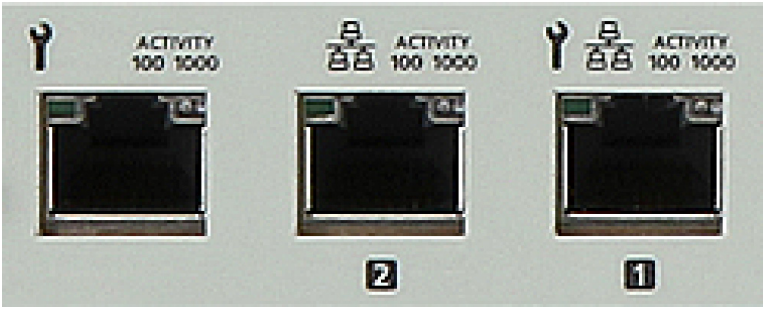


Figure 7: Ports for the iRMC S4 (indicated by wrench symbol)

3.1.1.2 Interaction between the IP addresses of the iRMC and the system

The LAN controller of the PRIMERGY server requires a separate IP address for the iRMC in order to ensure that data packets are reliably transferred to the iRMC (and not to the operating system).

The IP address of the iRMC must be different from that of the system (operating system).

3.1.1.3 Access from a different subnet

If the remote workstation accesses the iRMC of the managed server from a different subnet and DHCP is not used, you must configure the gateway.

3.1.2 Configuring the LAN interface: Configuration tools

You can configure the iRMC's LAN interface in a number of ways:

Depending on the type of the PRIMERGY server

– using the UEFI setup utility (see page 46),

– iRMC web interface (see section "Network Settings - Configure the LAN parameters" on page 250),

– using the Server Configuration Manager (see chapter "Configuring iRMC S4 using the Server Configuration Manager" on page 387).

3.1.3 Configuring the LAN interface using the UEFI setup utility

You can configure the iRMC's LAN interface using the UEFI setup utility:

- Call the UEFI setup utility of the managed server. Do this by pressing F2 while the server is booting.
- Call the *iRMC LAN parameter configuration* menu:

  Server Mgmt – iRMC LAN Parameters Configuration

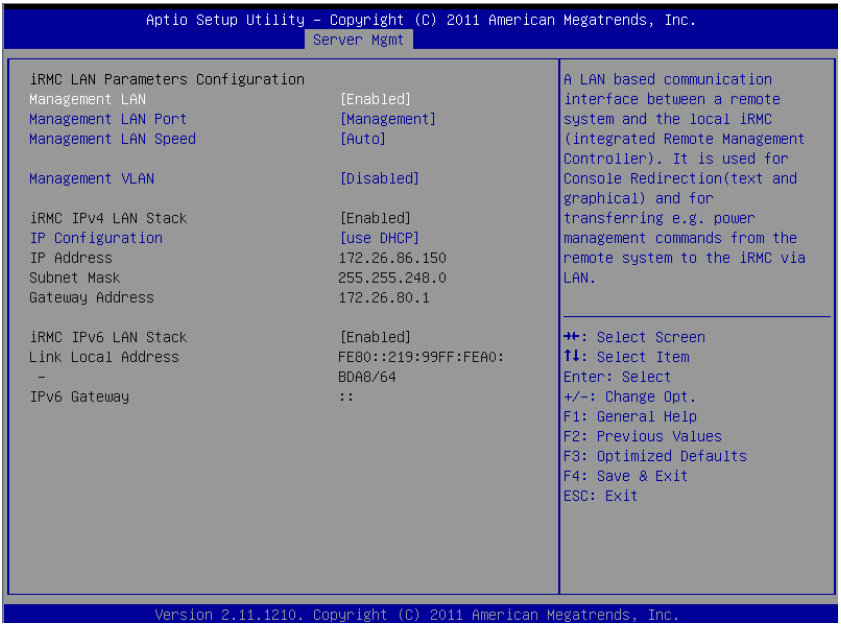

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Server Mgmt
iRMC LAN Parameters Configuration
Management LAN [Enabled]
Management LAN Port [Management]
Management LAN Speed [Auto]
Management VLAN [Disabled]
iRMC IPv4 LAN Stack [Enabled]
IP Configuration [use DHCP]
IP Address 172.26.86.150
Subnet Mask 255.255.248.0
Gateway Address 172.26.80.1
iRMC IPv6 LAN Stack [Enabled]
Link Local Address FE80::219:99FF:FEA0:
- BDA8/64
IPv6 Gateway ::
A LAN based communication interface between a remote system and the local iRMC (integrated Remote Management Controller). It is used for Console Redirection(text and graphical) and for transferring e.g. power management commands from the remote system to the iRMC via LAN.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.

Figure 8: iRMC LAN Parameters Configuration Menu

► Configure the following settings:

Management LAN
Set the value to *Enabled*.

Management LAN Port
The *Management* setting is recommended.

For details on configuring the remaining settings see section "Network Settings - Configure the LAN parameters" on page 250 and/or refer to the manual "BIOS (Aptio) Setup Utility" manual corresponding to your server.

► Save the settings.

► If you want to use console redirection on the iRMC, continue with section "Configuring text console redirection for the iRMC S4" on page 49.

If you do not want to use text console redirection on the iRMC, exit the UEFI setup and continue with the next section "Testing the LAN interface".

3.1.4 Testing the LAN interface

You can test the LAN interface as follows:

► Use a web browser to attempt to log into the iRMC web interface. If no login prompt appears, it is probable that the LAN interface is not working.

► Test the connection to the iRMC with a ping command.

3.2 Configuring text console redirection via LAN using the UEFI setup utility

Text console redirection will be available depending on the configuration of text console redirection and on the operating system of the server

– either for the duration of the BIOS POST phase only or

– beyond the BIOS POST phase while the operating system is running.

This section describes:

– Configuration of text console redirection via LAN using the UEFI setup utility.

– Special requirements of the operating system used that you need to take account of if you also want to use console redirection while the operating system is running.

You can also configure text console redirection via LAN using the iRMC S4 web interface (see section "BIOS Text Console - Configure and start text console redirection" on page 319).

3.2.1 Configuring text console redirection for the iRMC S4

- ► Call the UEFI setup utility of the managed server. Do this by pressing F2 while the server is booting.
- ► Call the *Server Mgmt* menu:

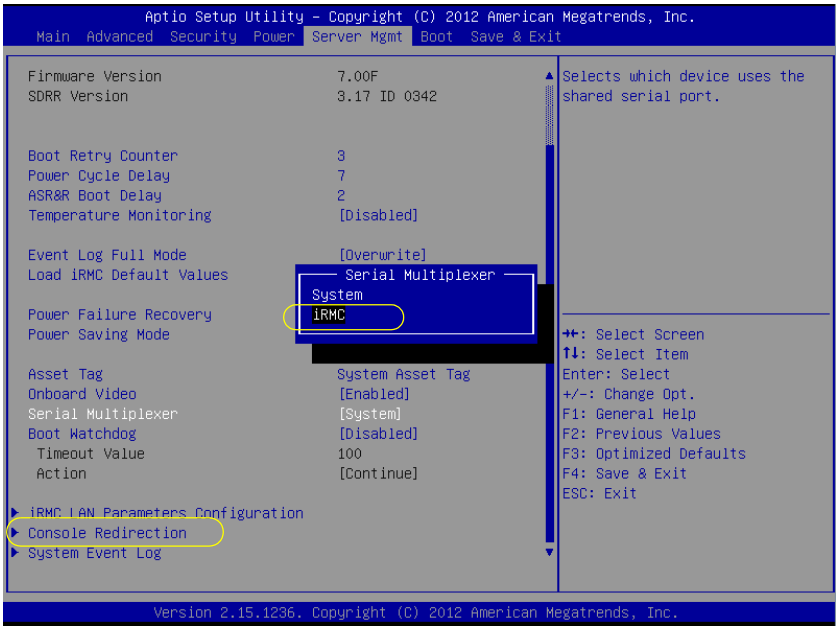


Figure 9: Server Mgmt Menu

- ► Make the following settings:

Serial Multiplexer

Set the value to *iRMC*.

► Call the *Console Redirection* menu:

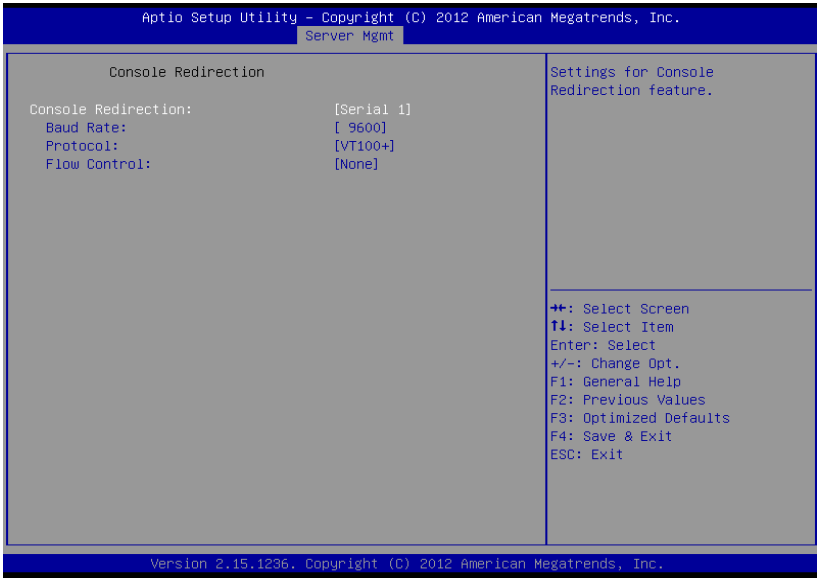


Figure 10: Console Redirection menu

► Make the following settings in the *Console Redirection* menu:

Console Redirection
: Set the value to *Serial 1*. In this case, the terminal uses the first serial interface.

Baud Rate
: Specify the baud rate.

Protocol
: Leave this setting unchanged. (The setting depends on the terminal type used.)

Flow Control
: The setting depends on the terminal type used. The settings must be the same on both terminal and managed server.

Exiting the UEFI setup utility

► Save your settings and exit the UEFI setup utility.

► Continue with section "Testing the LAN interface" on page 47.

3.2.2 Using console redirection while the operating system is running

Depending on the operating system used on the managed server, you can continue to use console redirection after the BIOS POST phase.

Windows Server 2008 / 2012

If activated during Windows installation, console redirection is thereby automatically configured.

If console redirection is activated after Windows installation has completed, you must configure console redirection manually.

Windows Server 2008 / 2012 handles console redirection automatically after the POST phase. No further settings are necessary. While the operating system is booting, the Windows Server SAC console is transferred:

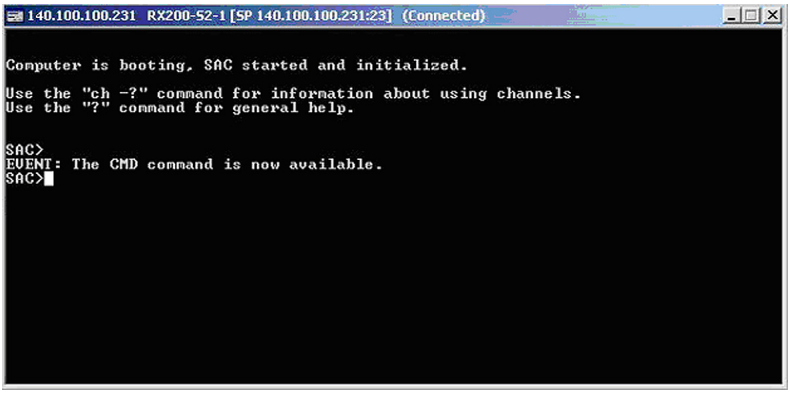

140.100.100.231 RX200-S2-1 [SP 140.100.100.231:23] (Connected)
Computer is booting, SAC started and initialized.
Use the "ch -?" command for information about using channels.
Use the "?" command for general help.
SAC>
EVENT: The CMD command is now available.
SAC>

Figure 11: Windows Server SAC console

Linux

You must configure a Linux operating system in such a way that it handles console redirection after the POST phase. Once it has been configured, you have unrestricted access from the remote workstation.

Settings required

The settings may differ between program versions.

You should check the version of your operating system. If the version is different from the versions for which the settings are described below, please refer to the documentation of your operating system.

SuSE and RedHat

Add the following line to the end of the file */etc/inittab*:

```
xx:12345:respawn:/sbin/agetty <baud-rate> ttyS0
```

RedHat

Insert the following kernel boot parameter in the file */etc/grub.conf*:

```
console=ttyS0,<baud-rate> console=tty0
```

SuSE

Insert the following kernel boot parameter in the file */boot/grub/menu.lst*:

```
console=ttyS0,<baud-rate> console=tty0
```

3.3 Configuring and using the serial interface of the iRMC S4

The serial interface of the iRMC allows you to use the terminal application Remote Manager (Serial) over a null modem cable (see section "Using the Remote Manager (Serial) interface" on page 55).

3.3.1 Configuring the serial interface using of the iRMC S4

- ► Call the UEFI setup utility of the managed server. Do this by pressing F2 while the server is booting.
- ► Call the *Server Mgmt* menu:

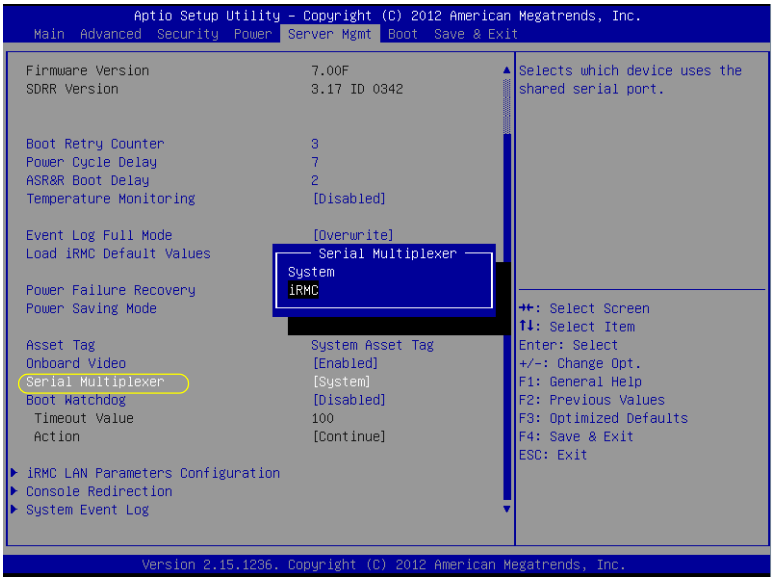


Figure 12: Server Mgmt menu

- ► Configure the following settings:

Serial Multiplexer
Set the value to *iRMC*.

► Call the *Serial Port 1 Configuration* menu to configure the serial port:

Advanced – Super IO Configuration – Serial Port 1 Configuration:

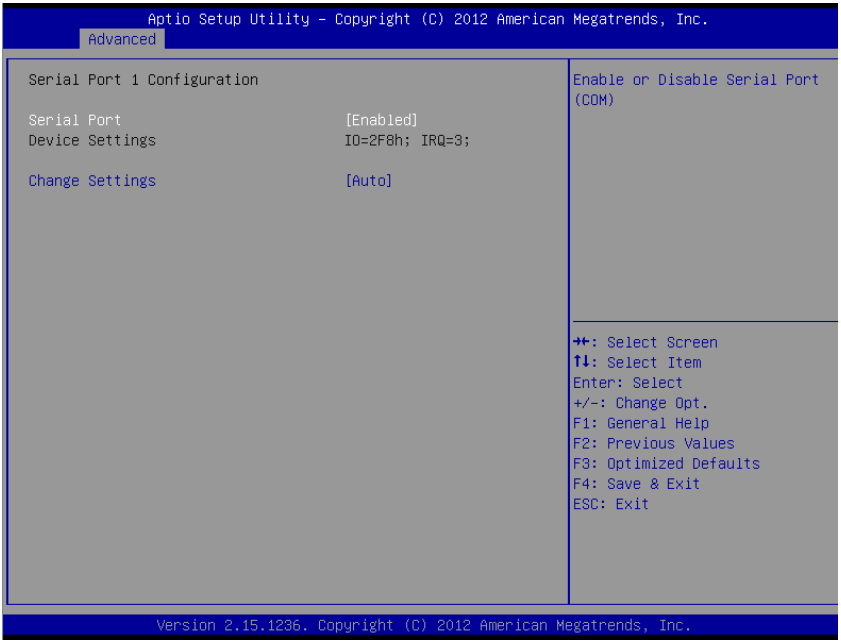


Figure 13: Serial Port 1 Configuration menu

► Configure the following settings:

Serial Port

Set the value to *Enabled*.

Device Settings

Displays the base I/O address and the interrupt used to access the corresponding serial port, e.g. IO=2F8h; IRQ=3.

Accept the value pair proposed.

Exiting the UEFI setup utility

► Save your settings and exit the UEFI setup utility.

► Continue with section "Testing the LAN interface" on page 47.

3.3.2 Using the Remote Manager (Serial) interface

If you connect a computer over a null modem cable and start a terminal program (VT100+) on this computer, you can access the Remote Manager (Serial) terminal program. The Remote Manager (Serial) interface is identical to the Remote Manager interface (see chapter "iRMC S4 via Telnet/SSH (Remote Manager)" on page 359).

Prerequisites

On the managed server:

The *Serial Multiplexer* BIOS setting must be configured on the *iRMC* (see section "Configuring the serial interface using of the iRMC S4" on page 53).

Terminal program (VT100+):

Configure the following port settings for the terminal program:

Bits per second

Set the value to *38400*.

Data bits

Set the value to *8*.

Parity

Set the value to *None*.

Stop bits

Set the value to *1*.

Flow Control

Set the value to *None*.

3.4 Configuring the iRMC S4 over the iRMC S4 web interface

► Start the iRMC web interface (see section "Logging into the iRMC web interface" on page 122).

3.4.1 Configuring the LAN parameters

► In the navigation area, click *Network Settings* (see section "Network Settings - Configure the LAN parameters" on page 250).

Configuring the LAN settings

► Configure the LAN settings on the *Network Interface* page. See the section "Network Interface Settings - Configure Ethernet settings on the iRMC" on page 251 for the settings required.

Configuring ports and network services

► Configure the ports and network services on the *Ports and Network Services* page. See the section "Ports and Network Services - Configuring ports and network services" on page 258 for the settings required.

Configuring DHCP/DNS (Dynamic DNS)

► Configure the DHCP and DNS settings in the *DNS Configuration* page. See the section "DNS Configuration - Configuring DNS for the iRMC" on page 264 for the settings required.

3.4.2 Configuring alerting

The pages for configuring alerting are grouped in the navigation area under *Alerting* (see section "Alerting - Configure alerting" on page 270).

Configuring alert forwarding over SNMP

- In the navigation area, click *SNMP Traps*. The *SNMP Traps* page appears.
- Configure SNMP trap forwarding. See the section "SNMP Trap Alerting - Configure SNMP trap alerting" on page 271 for the settings required.

Configuring email notification (email alerting)

- In the navigation area, click *Email*. The *Email Alerting* page appears.
- Configure email alerting. See the section "Email Alerting - Configure email alerting" on page 273 for the settings required.

3.4.3 Configuring text console redirection

- Configure text console redirection in the *BIOS Text Console* window. See the section "BIOS Text Console - Configure and start text console redirection" on page 319 for the settings required.

4 User management for the iRMC S4

User management for the iRMC uses two different types of user identifications:

– **Local user identifications** are stored locally in the iRMC's non-volatile storage and are managed via the iRMC user interfaces.

– **Global user identifications** are stored in the central data store of a directory service and are managed via this directory service's interfaces.

  The following directory services are currently supported for global iRMC S4 user management:

  – Microsoft® Active Directory
  – Novell® eDirectory
  – OpenLDAP
  – OpenDJ

This chapter provides information on the following topics:

– User management concept for the iRMC
– User permissions
– Local user management on the iRMC

For detailed information on the global user management using the individual directory services, please refer to the "User Management in ServerView" manual.

4.1 User management concept for the iRMC

User management for the iRMC permits the parallel administration of local and global user identifications.

When validating the authentication data (user name, password) which users enter when logging in to one of the iRMC interfaces, iRMC proceeds as follows (see also figure 14 on page 61):

1. The iRMC compares the user name and password with the locally stored user identifications:
   - If the user is authenticated successfully by iRMC (user name and password are valid) then the user can log in.
   - Otherwise, the iRMC continues the verification with step 2.
2. The iRMC authenticates itself at the directory service via LDAP with a user name and password.

   Depending on its LDAP configuration settings, the iRMC continues as follows:

   - If ServerView-specific LDAP groups with authorization settings in the *SVS* structure on the LDAP server are used, the iRMC determines the user's permissions by using an LDAP query and checks whether the user is authorized to work on the iRMC.

     Characteristics:

     – Extension of the directory server structure required.
     – Privileges / permissions are configured centrally on the directory server.

   - If LDAP standard groups are used with authorization settings deposited locally on the iRMC, the iRMC proceeds as follows:

     1. The iRMC uses an LDAP query to determine which standard LDAP group on the directory server the user belongs to.
     2. The iRMC checks whether a user group with this name is also configured locally on the iRMC. If this applies, the iRMC determines the user's permissions by means of this local group.

     Characteristics:

     – No extension of the directory server structure required.
     – Privileges / permissions are configured separately on each iRMC.

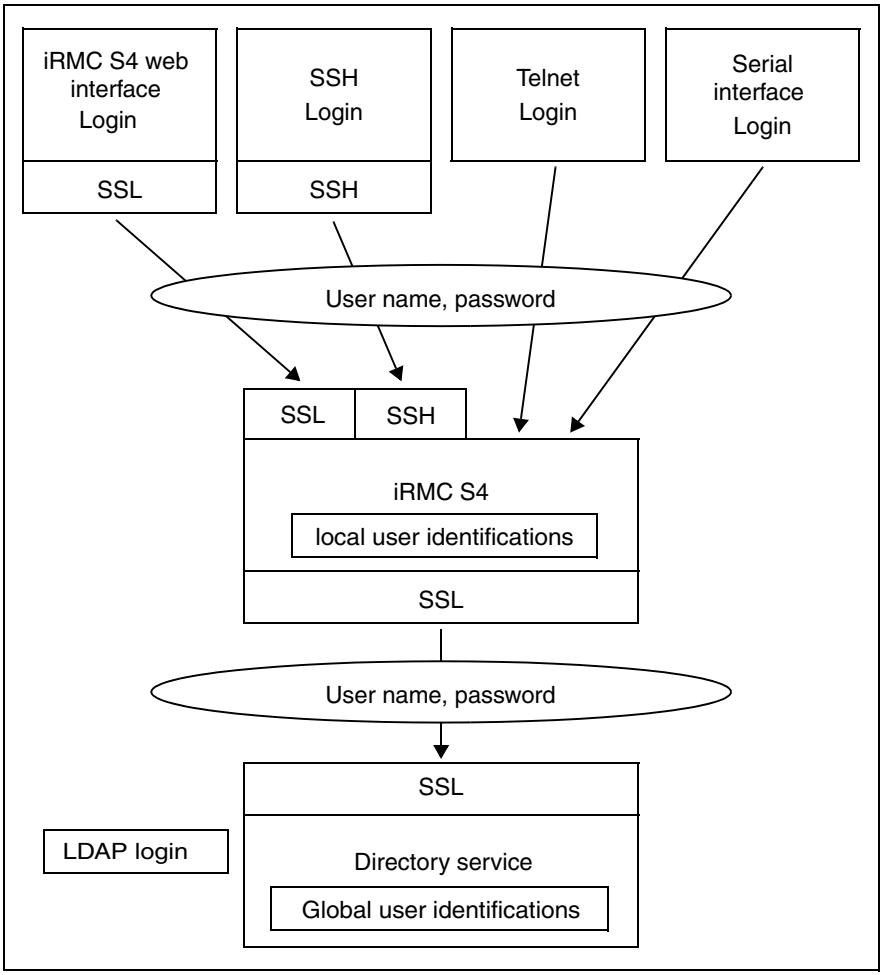


Figure 14: Login authentication via the iRMC S4

Although optional, the use of SSL for the LDAP connection between the iRMC and directory service is recommended. An SSL-secured LDAP connection between iRMC and the directory service guarantees secure data exchange, and in particular the secure transfer of the user name and password data.

SSL login via the iRMC web interface is only required if LDAP is active (*LDAP enable* option, see page 295).

4.2 User permissions

The iRMC distinguishes between two mutually complementary types of user permissions:

– Channel-specific privileges (via assignment to channel-specific permission groups)

– Permissions to use special iRMC functions

The privileges and permissions required for the use of the individual iRMC functions are described

  – for the iRMC-web interface, on page 124,

  – for the Remote Manager, on page 369.

Channel-specific privileges (channel-specific permission groups)

The iRMC assigns each user identification to one of the following four channel-specific permission groups:

– User
– Operator
– Administrator
– OEM

Since iRMC assigns these permissions on a channel-specific basis, users can have different permissions, depending on whether they access the iRMC over the LAN interface or the serial interface.

The scope of permissions granted increases from *User* (lowest permission level) through *Operator* and *Administrator* up to *OEM* (highest permission level).

The permission groups correspond to the IPMI privilege level. Certain permissions (e.g. for Power Management) are associated with these groups or privilege levels.

Adding the iRMC to the ServerView Operations Manager server list requires LAN channel privilege *Administrator* or *OEM* (see the manual "ServerView Operations Manager").

Permissions to use special iRMC S4 functions

In addition to the channel-specific permissions, you can also individually assign users the following permissions:

- **Configure User Accounts**
  Permission to configure local user identifications
- **Configure iRMC Settings**
  Permission to configure the iRMC settings.
- **Video Redirection Enabled**
  Permission to use Advanced Video Redirection (AVR) in “View Only” and “Full Control” mode
- **Remote Storage Enabled**
  Permission to use the Virtual Media functionality

Preconfigured user ID

The firmware of the iRMC provides a default administrator ID for the iRMC which possesses all permissions:

Administrator ID: admin

Password: admin

Both the administrator ID and the password are case-sensitive in the case of local users.

It is urgently recommended that you create a new administrator account as soon as possible once you have logged in, and then delete the default administrator account or at least change the password for the account (see section "User Management" on page 280).

4.3 Local user management for the iRMC S4

The iRMC possesses its own local user management. Up to 16 users to be configured with passwords and be assigned various rights depending on the user groups they belong to. The user identifications are stored in the iRMC S4's local, non-volatile storage.

The following options are available for user management on the iRMC:

– User management via the web interface

– User management via the Server Configuration Manager

4.3.1 Local user management using the iRMC S4 web interface

User management on the iRMC requires *Configure User Accounts* permission.

You can view a list of configured users under the web interface. You can also configure new users, change the configuration of existing users and remove users from the list.

► Start the iRMC web interface (see section "Logging into the iRMC web interface" on page 122).

Showing the list of configured users

► In the navigation area, click the *User Management - iRMC S4 User* function.

The *User Management* page opens containing a list of configured users (see page 281). Here, you can delete users and call the page for configuring new users.
This page is described in section "User Management" on page 280.

Configuring new users

- On the *User Management* page, click the *New User* button.

  The *New User Configuration* page opens. This page allows you to configure the basic settings for the new user. This page is described in section "New User Configuration - Configuring a new user" on page 282.

Modifying the configuration of a user

- On the *User Management* page, click the name of the user whose configuration parameters you want to change.

  The *User "<name>" Configuration* page opens showing the settings for the selected user. Here, you can change the configuration parameters for the new user. This page is described in section "User "<name>" Configuration - User configuration (details)" on page 283.

Deleting users

- On the *User Management* page, click on the *Delete* button in the same line as the user to be deleted.

4.3.2 Local user management via the Server Configuration Manager

Prerequisite:

The current ServerView agents must be installed on the managed server.

User management on the iRMC requires *Configure User Accounts* permission.

User management via the Server Configuration Manager largely conforms to user management using the iRMC web interface.

In chapter "Configuring iRMC S4 using the Server Configuration Manager" on page 387 is described how to start the Server Configuration Manager.

For details on the individual Configuration Manager dialogs, please refer to the online help of the Server Configuration Manager.

4.3.3 SSHv2 public key authentication for iRMC S4 users

In addition to authentication by means of a user name and password, the iRMC S4 also supports SSHv2-based public key authentication using pairs of public and private keys for local users. To implement SSHv2 public key authentication, the SSHv2 key of an iRMC user is uploaded to the iRMC S4 and the iRMC user uses their private key with the program *PuTTY* or the OpenSSH client program *ssh*, for example.

The iRMC supports the following types of public keys:

– SSH DSS (minimum requirement)
– SSH RSA (recommended)

The public SSHv2 keys that you upload to the iRMC can be available either in RFC4716 format or in OpenSSH format (see page 78).

Public key authentication

In outline, public key authentication of a user on the iRMC happens as follows:

The user who wishes to log into the iRMC creates the key pair:

– The private key is read-protected and remains on the user's computer.

– The user (or administrator) uploads the public key to the iRMC.

If the configuration allows this, the user can now log into the iRMC extremely securely and without the need to enter a password. The user is only responsible for keeping their private key secret.

The following steps are necessary to set up private key authentication. They are described in the subsequent sections:

1. Creating the public and private SSHv2 keys with the program *PuTTYgen* or *ssh-keygen* and saving them in separate files (see page 67).
2. Loading the public SSHv2 key onto the iRMC from a file (see page 71).
3. Configuring the program *PuTTY* or *ssh* for SSHv2 access to the iRMC (see page 73).

4.3.3.1 Creating public and private SSHv2 keys

You can create public and private SSHv2 keys

– with the program *PuTTYgen* or

– with the OpenSSH client program *ssh-keygen*.

Creating the public and private SSHv2 keys with PuTTYgen

Proceed as follows:

► Start *PuTTYgen* on your Windows computer.

The following window appears when *PuTTYgen* is started:

Figure 15: PuTTYgen: Creating new private and public SSHv2 keys

► Under *Parameters*, select the key type *SSH-2RSA* and click *Generate* to start generation of the keys.

The progress of the generation operation is then displayed under *Key* (see figure 16 on page 68).

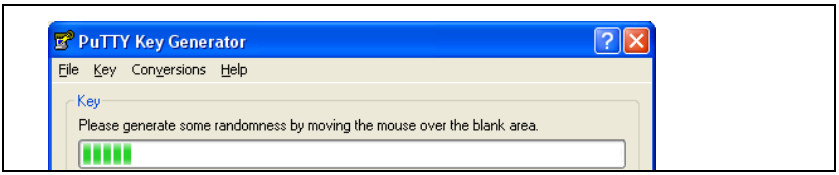

PuTTY Key Generator
File Key Conversions Help
Key
Please generate some randomness by moving the mouse over the blank area.

Figure 16: PuTTYgen: Creating a new key pair (progress bar).

- Move the mouse pointer over the blank area of the progress display to increase the randomness of the generated keys.

  When the keys have been generated, *PuTTYgen* displays the key and the fingerprint of the public SSHv2 key:

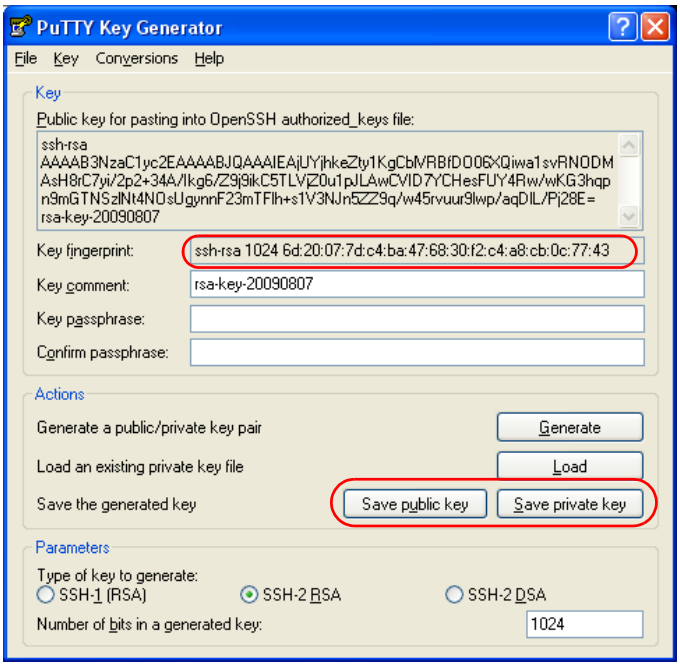


Figure 17: PuTTYgen: Creating a new private SSHv2 key (progress bar).

- Click *Save public key* to save the public SSHv2 key to a file. You can upload the public key to the iRMC from this file (see page 71).
- Click *Save private key* to save the private SSHv2 key to a file for use with *PuTTY* (see page 73).

Creating the public and private SSHv2 keys with ssh-keygen

If it is not already pre-installed in the Linux distribution you are using, you can obtain OpenSSH from *http://www.openssh.org*.

You will find a detailed description of the operands in the OpenSSH OpenSSH manual pages under *http://www.openssh.org/manual.html*

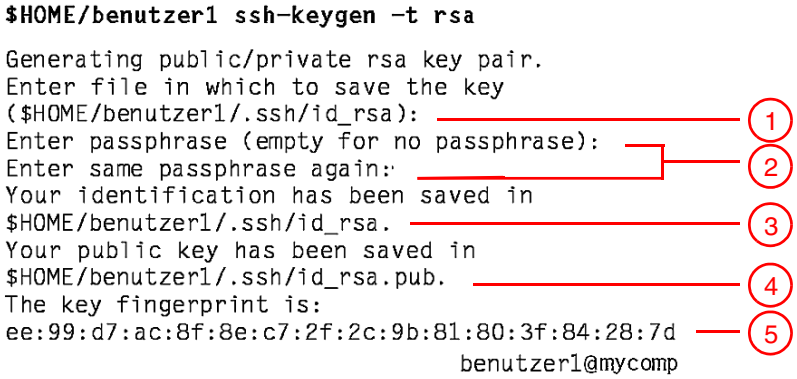
Proceed as follows:

- Call *ssh-keygen* to generate an RSA key pair:

  ```
  ssh-keygen -t rsa
  ```

  ssh-keygen logs the progress of the key generation operation. *ssh-keygen* queries the user for the file name under which the private key is to be stored and for the passphrase for the private key. *ssh-keygen* stores the resulting private and public SSHv2 keys in separate files and displays the fingerprint of the public key.

  Example: Generating an RSA key pair with ssh -keygen



Explanation:

1. *ssh-keygen* requests the file name under which the SSHv2 key is to be saved. If you press Enter to confirm without entering a file name, *ssh-keygen* uses the default file name *id_rsa*.
2. *ssh-keygen* requests you to enter a passphrase (and to confirm it) that is used to encrypt the private key. If you press Enter to confirm without entering a passphrase, *ssh-keygen* does not use a passphrase.
3. *ssh-keygen* informs the user that the newly generated private SSHv2 key has been saved in the file */.ssh/id_rsa*.
4. *ssh-keygen* informs the user that the newly generated public SSHv2 key has been saved in the file */.ssh/id_rsa.pub*.
5. *ssh-keygen* displays the fingerprint of the public SSHv2 key and the local login to which the public key belongs.

4.3.3.2 Loading the public SSHv2 key onto the iRMC from a file

Proceed as follows:

► Under the iRMC web interface, open the detailed view for the required browser (in this case *user3*) *iRMC S4 User Management* page:

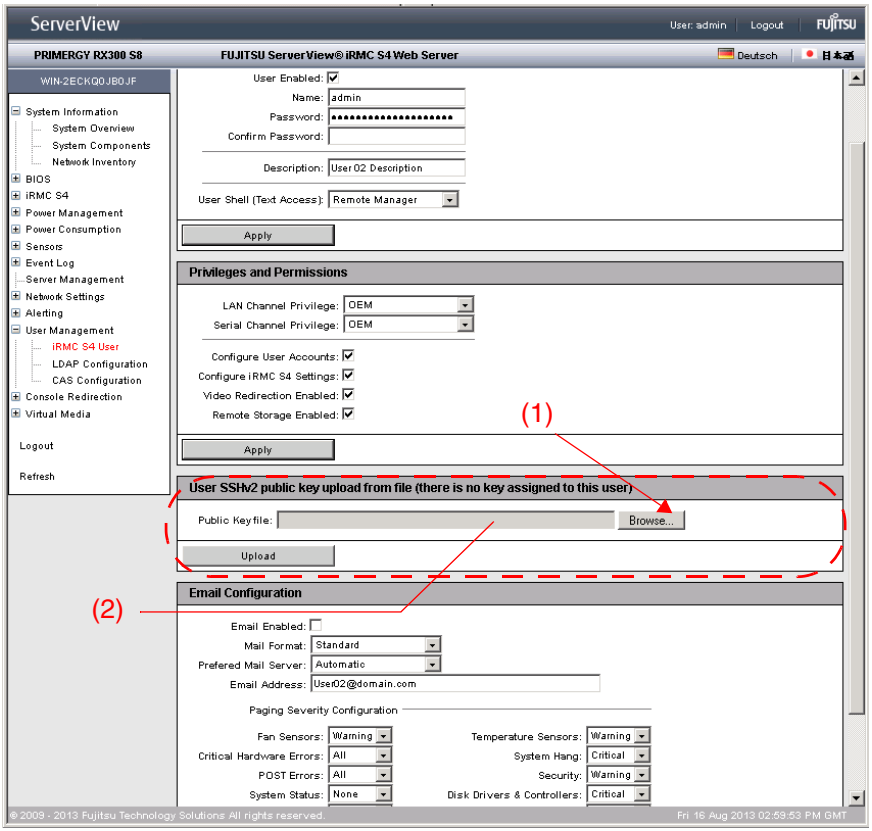


Figure 18: iRMC web interface: Loading the public SSHv2 key onto the iRMC

► Click *Browse* in the group *User SSHv2 public key upload from file* (1) and navigate to the file containing the required public key (2).

► Click *Upload* to load the public key onto the iRMC.

After the key has been successfully uploaded, the iRMC displays the key fingerprint in the group *User SSHv2 public key upload from file*:

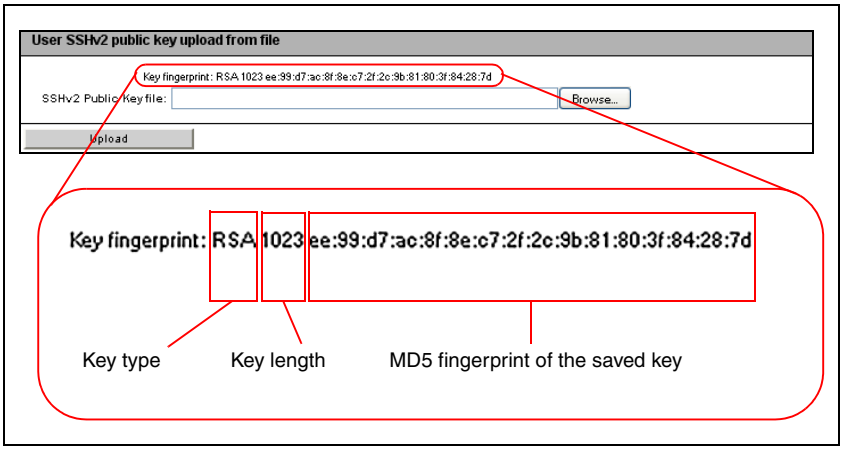


Figure 19: Display of the key fingerprint

For reasons of security, make sure that the fingerprint shown here matches that shown in *PuTTYgen* (see figure 17 on page 68) under *Key fingerprint*.

4.3.3.3 Configuring PuTTY and the OpenSSH client for using the public SSHv2 key

Configuring PuTTY for using the public SSHv2 key

The *PuTTY* program allows you to set up a public-key-authenticated connection to the iRMC and log in either under your user name or using the auto-login mechanism. *PuTTY* handles the authentication protocol automatically on the basis of the public/private SSHv2 key pair previously generated.

Proceed as follows:

- ► Start *PuTTY* on your Windows computer.

  The following window appears when *PuTTY* is started:

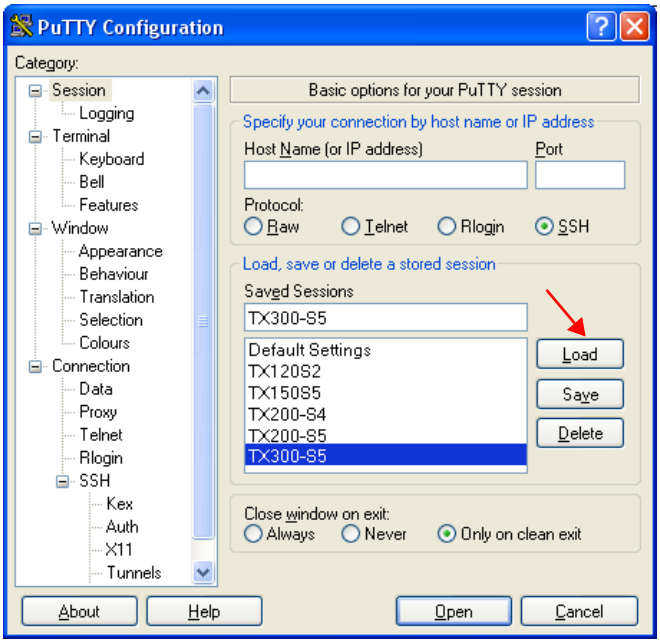


Figure 20: PuTTY: Selecting and loading an SSH session

- ► Select a saved SSH session or create a new SSH session for the iRMC S4 for which you want to use the SSHv2 key.

► Click *Load* to load the selected SSH session.

This opens the following window:

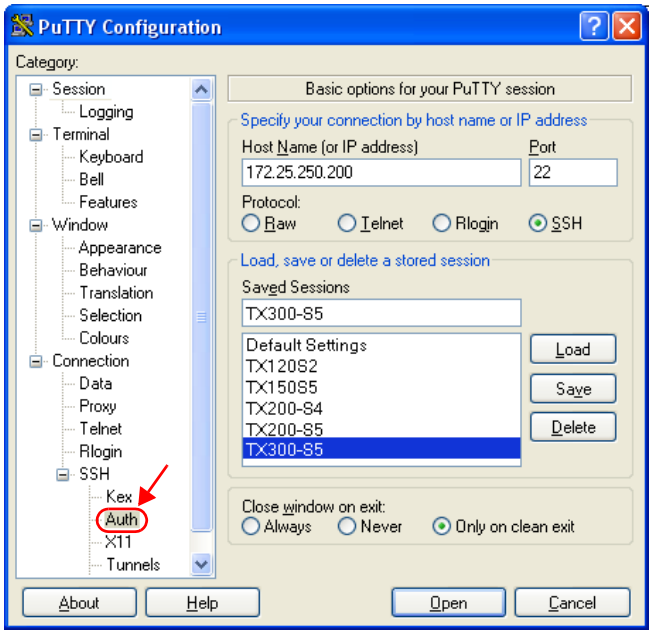


Figure 21: PuTTY: Loading an SSH session

► Choose *SSH - Auth* to configure the SSH authentication options.

This opens the following window (see figure 22 on page 75).

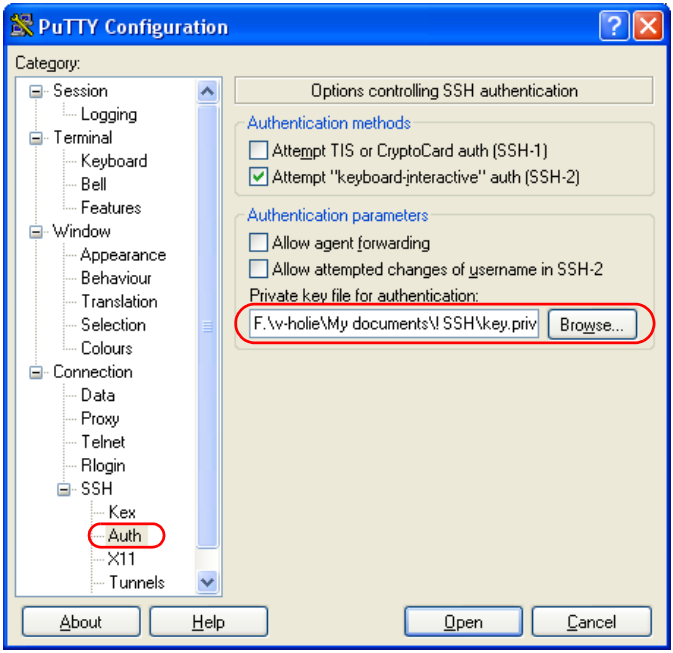


Figure 22: Configuring the SSH authentication options

► Select the file containing the private key that you want to use with the iRMC S4.

Please note:
At this point, you require the private key (see page 68) and **not** the public key that you loaded onto the iRMC.

Under *Connection - Data*, you can additionally specify a user name for automatic login onto the iRMC.

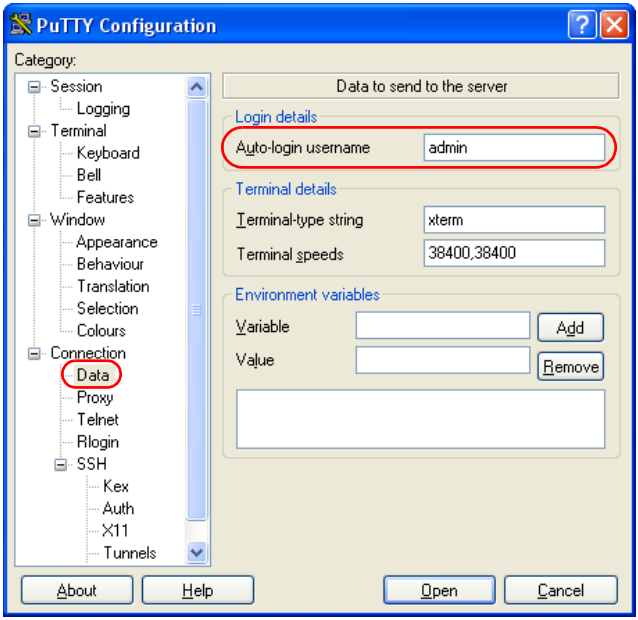


Figure 23: PuTTY: Specifying the user name for automatically logging into the iRMC

Configuring the OpenSSH client program ssh for using the public SSHv2 key

You establish an SSHv2-protected connection to the iRMC using the OpenSSH client program *ssh*. You can log in either under your current local login or under a different login.

The login must have been configured as a local login on the iRMC and the associated SSHv2 key must have been loaded on the iRMC S4.

ssh reads its configuration options in order from the following sources:

1. Command line arguments that you specify when calling *ssh*:
2. User-specific configuration file (*$HOME/.ssh/config*)

Although this file contains no security-critical information, read/write permission should only be granted to the owner. Access should be denied to all other users.

3. System-wide configuration file (*/etc/ssh/ssh_config*)

   This file contains default values for configuration parameters

   – if there is no user-specific configuration file or

   – if the relevant parameters are not specified in the user-specific configuration file.

The value found first applies for each option.

You will find detailed information on the configuration of *ssh* and on its operands on the manual pages for OpenSSH under

http://www.openssh.org/manual.html

Proceed as follows:

► Start *ssh*, to log in to the iRMC under SSHv2-authentication:

```
ssh -l [<user>] <iRMC_S4>
```

or

```
ssh [<user>@]<iRMC_S4>
```

<user>
: User name under which you want to log into the iRMC. If you do not specify <user>, *ssh* uses the user name under which you are logged into your local computer to log you in to iRMC.

<iRMC_S4>
: iRMC name or IP address of the iRMC you want to log into.

Example: SSHv2-authenticated login on the iRMC

For the following *ssh*- call, it is assumed that *ssh-keygen* has been used to generate a public/private RSA key pair as described under "Example: Generating an RSA key pair with ssh -keygen" on page 69 and that the public key *User1/.ssh/id_rsa.pub* has been loaded onto the iRMC for an iRMC user *user4* (see page 71).

You can then log in from your local computer under *$HOME/User1* as follows on the iRMC "RX300_S82-iRMC" using the login *user4*:

```
ssh user4@RX300_S82-iRMC
```

4.3.3.4 Example: Public SSHv2 key

The following shows the same public SSHv2 key in both RFC4716 format and in OpenSSH format.

Public SSHv2 key in RFC4716 format

```
---- BEGIN SSH2 PUBLIC KEY ----
Comment: "rsa-key-20090401"
AAAAB3NzaC1yc2EAAAABJQAAAIBScBsgP9B74qNa9+w8Ccv3kDVVu2boKCGLv4hx
v6+AUFrF6sYdGey1QQ7MkwSeax3NmoZBkvkR9hNfZSqxkPCkd//LyUil9US5/9Ar
JxjlhXUzlPPVzuBtPaRB7+bISTJVMUorNwrcN48b6AAoYBhKC4AOtOP1OGsfc+F
pGJ2iw==
---- END SSH2 PUBLIC KEY ----
```

Public SSHv2 key in OpenSSH format

```
ssh-rsa
AAAAB3NzaC1yc2EAAAABJQAAAIBScBsgP9B74qNa9+w8Ccv3kDVVu2boKCGLv4hx
v6+AUFrF6sYdGey1QQ7MkwSeax3NmoZBkvkR9hNfZSqxkPCkd//LyUil9US5/9Ar
JxjlhXUzlPPVzuBtPaRB7+bISTJVMUorNwrcN48b6AAoYBhKC4AOtOP1OGwsfc+F
pGJ2iw== rsa-key-20090401
```

5 Advanced Video Redirection (AVR)

A valid KVM license key is required to use the Advanced Video Redirection function.

Java caching **must not** be disabled. Otherwise AVR cannot be started. (Java caching is enabled by default).

Advanced Video Redirection (AVR) allows you to control the mouse and keyboard of the managed server from your remote workstation and to show the current graphical and text output from the managed server.

The AVR Java applet allows you to use the Virtual Media function (see chapter "Virtual Media Wizard" on page 111).

This chapter provides information on the following topics:

– Checking the AVR settings
– Using AVR via a Java applet
– Using AVR via HTML5

5.1 Requirements: Check the AVR settings

Check the following important settings before using AVR:

Graphics mode settings on the managed server

AVR supports the following graphics modes:

Resolution	Refresh rates [in Hz]	Maximum color depth [bits]
640 x 480 (VGA)	60; 75; 85	32
800 x 600 (SVGA)	56; 60; 72; 75; 85	32
1024 x 768 (XGA)	60; 70; 75; 85	32
1152 x 864	60; 70; 75	32
1280 x 1024 (UXGA)	60; 70; 75; 85	16
1280 x 1024 (UXGA)	60	24
1600 x 1200 (UXGA)	60; 65	16
1680 x 1050	60	16
1920 x 1080	60	16
1920 x 1200	60	16

Table 3: Supported display settings

Only VESA-compliant graphics modes are supported.

Supported text mode

The iRMC supports the following common text modes:

– 40 x 25
– 80 x 25
– 80 x 43
– 80 x 50

Refer to the Help system for your operating system for information on the display settings.

Keyboard settings

If the keyboard language settings on the remote workstation are different from those on the managed server, AVR keyboard language settings have to be same as on the managed server.

Mapping is possible between the following languages:

– *Auto Detect* (default value)
– *English (United States)*
– *English (United Kingdom)*
– *French*
– *French (Belgium)*
– *German (Germany)*
– *German (Switzerland)*
– *Japanese*
– *Spanish*
– *Italian*
– *Danish*
– *Finnish*
– *Norwegian (Norway)*
– *Portuguese (Portugal)*
– *Swedish*
– *Dutch (Netherland)*
– *Dutch (Belgium)*
– *Turkish - F*
– *Turkish - Q*

Not all keys can be mapped. If one key doesn't work, please use the Softkeyboard (see page 88).

5.2 Using AVR via a Java Applet

You have the following options to start AVR:

- Click the *Start Video Redirection (Java Web Start)* button on the *Advanced Video Redirection (AVR)* page of the iRMC web interface (see page 324)

  or, if displayed,

- Click the *Video Redirection (JWS)* link in the tree structure of the iRMC web interface.

  The *Advanced Video Redirection* window (AVR window) opens, showing you the display on the managed server.

5.2.1 AVR window

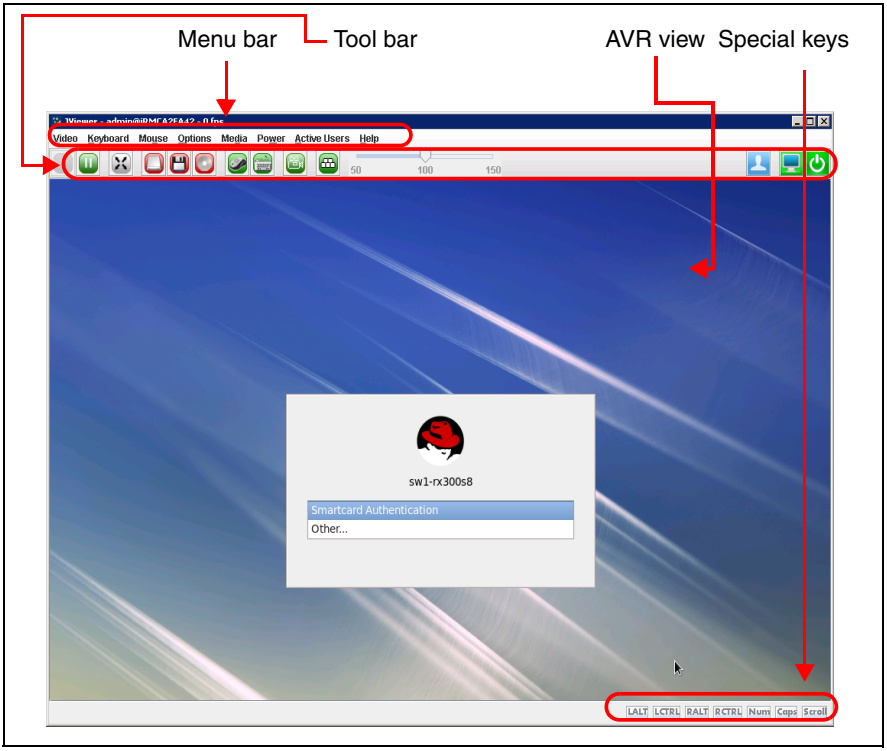


Figure 24: Advanced Video Redirection (AVR) window

The AVR window also contains the following elements:

- AVR menu bar provides access to the individual AVR menus (see page 90).
- The AVR tool bar provides direct access to a variety of AVR tools allowing you, among others, to stop/resume your AVR session, use the *Virtual Media* function, record your AVS session and use hotkeys (see page 87).
- The zoom tool bar allows you to stageless enlarge or reduce the AVR view (see page 106).
- The integrated special keys in right bottom of the AVR window allow you to use Windows keys or special key combinations which are not sent by AVR if you press them on your own keyboard (see page 87).

5.2.2 Using a low bandwidth

In the case of a reduced data transfer rate, you can configure a lower bandwidth (bits per pixel, bpp) in terms of color depth for your current AVR session.

5.2.3 Parallel AVR sessions

AVR can be used by up to two user sessions simultaneously. The AVR session started first is initially in *Full access* mode and has full control over the server.

Starting a second AVR session while a previous one is still active

When an AVR session2 is started while a previous AVR session1 is still active and in *Full access* mode, the procedure is as described below.

– In the AVR window of session 1, the *Virtual Console Sharing Privileges* dialog box opens which counts down from 30 seconds:

Figure 25: Virtual Console Sharing Privileges dialog box - Give Permission to ...

Allow Virtual Console

Session 2 is switched to *Full access* mode. Session 1 is switched *Partial access (only Video)* mode.

Virtual media connections of session1 are cleared.

Allow only Video

Session 2 is switched to *Partial access (only Video)* mode. In this mode, you can only passively observe keyboard and mouse operation of the server. Only the *Video* and *Active Users* functions can be used.

Session 1 remains in *Full access* mode.

Deny Access

Session 2 is denied access and closed. Session1 remains in *Full access* mode.

If the counter expires before session 1 has confirmed with *OK*, session 2 is switched to *Full access* mode. Session1 is switched to *Partial access (only Video)* mode.

Requesting "Full access" when two AVR sessions are currently active

If two AVR sessions are currently active and session 1 is the one that is not in *Full access* mode, user 1 of session 1 can request *Full access* by clicking *Request Full Permission* in the *Options* menu of the AVR window (see page 101).

In this case, user 2 of the concurrent AVR session 2 is prompted to grant AVR session 1 *Full access:*

Figure 26: Virtual Console Sharing Privileges dialog box - Give Permission to user <user>...

This dialog box, which counts down from 28 seconds, offers for selection the following options, which can be enabled by clicking *OK*:

Allow Virtual Console

AVR session 1 is granted *Full access*. In AVR session 1, this is indicated as follows:

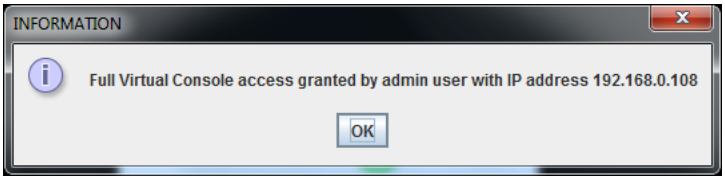


Figure 27: INFORMATION dialog box - "Full access" granted

Allow only Video

AVR session 1remains in partial *Partial access* mode (default). In AVR session 1, this is indicated as follows:

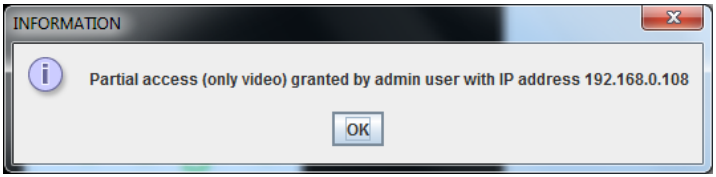


Figure 28: INFORMATION dialog box - "Partial access" granted

Exiting the "Full access" session

If two AVR sessions are currently active and you exit the one that is in *Full access* mode, the following dialog box opens, asking you to select the next master session (i.e. the session with *Full access*).

Figure 29: Virtual Console Sharing Privileges dialog box - Select the next Master Session

This dialog box, which counts down from 10 seconds, offers for selection the user of the other session:

– If you select this option, the other session will switch to *Full access* mode.

– If you deselect this option, the other session will remain in *Partial access (only Video)* mode.

– If the counter expires before you have confirmed with *OK*, the other session will remain in *Partial access (only Video)* mode.

5.2.4 "Local Monitor Off Control" function

The *Local Monitor Off Control* function of the iRMC allows you to power down the local monitor of the managed server for the duration of your AVR session. In this way, you ensure that the inputs you make and the actions you perform on the local monitor on the server using AVR cannot be seen. The identification LED flashes to indicate "Local Monitor Off" mode on the server.

You configure the *Local Monitor Off Control* function on the *Advanced Video Redirection* page of the iRMC web interface (see page 324). On the *Advanced Video Redirection* page, you can also configure that the local monitor is always switched off automatically whenever a new AVR session is started.

After you have configured the system appropriately, you can switch the local monitor of the server on and off from the remote workstation by alternatively using the AVR *Video* menu by clicking the second icon from the right in the tool bar.

The local monitor is always switched on and cannot be switched if the *Local Monitor Off Control* option (see page 328) is disabled.

The current status of the local monitor is indicated the AVR *Video* menu and displayed via the second icon from the right in the AVR Tool bar (see section "AVR Tool bar" on page 106):

	Indicates that the local monitor is locked (switched off), i.e. actions performed on the AVR console cannot be seen on the monitor of the managed server. Clicking this button will unlock the monitor of the managed server and change icon color to green.

	Indicates that the monitor of the managed server is unlocked (switched on), i.e. actions performed on the AVR console can be seen on the monitor of the managed server. Clicking this button will lock the monitor of the managed server and change icon color to read. If the *Local Monitor Off Control* option (see page 328) is disabled, the monitor status cannot be switched.

5.2.5 Redirecting the keyboard

Keyboard redirection only works when the focus is on the AVR window.

- If keyboard redirection appears not to be working, simply click on the AVR window.
- If the keyboard does not respond, check that the AVR window is not in view-only mode. How to switch to full-control mode is described on page 84.

Special key combinations

AVR passes all normal key combinations to the server. Special keys such as Windows keys are not sent. Some special key combinations such as ALT + F4 cannot be sent, because they are interrupted by the client's operating system. In such cases, you should use the integrated special keys or the hotkeys defined by yourself or the virtual keyboard.

Full keyboard support

The *Full keyboard support* feature allows you to use, via *SoftKeyboard*, all function keys of the managed server's physical keyboard.

Integrated special keys

In the lower right of the AVR window, you will find a bar containing the special keys. These keys are implemented as "sticky keys", i.e. they remain pressed (indicated by a red label) when you click them and only return to their normal position when you click them again.

Using the integrated special keys, you can, for instance, use special key combinations which are not sent by AVR if you press them on your own keyboard.

Figure 30: AVR window - integrated special keys

LALT
: Left Alt(ernate) key (corresponds to the Alt key on your keyboard).

LCTRL
: Left CTRL key (corresponds to the left Ctrl key on your keyboard).

RAlt
: Right Alt(ernate) key / Alt(ernate) Graphic key (corresponds to the Alt Gr key on your keyboard).

RCTRL
: Right CTRL key (corresponds to the right Ctrl key on your keyboard).

Num
: Num Key. Activates/deactivates the numeric keys on the right of your keyboard (corresponds to the Num key on your keyboard).

Caps
: Caps Lock key (corresponds to the Caps Lock key on your keyboard).

Scroll
: Scroll key (corresponds to the Scroll key on your keyboard).

SoftKeyboard (virtual keyboard)

The SoftKeyboard (also known as virtual keyboard, see figure 31) provides you with a functional representation of the keyboard. All key combinations are available when you use the SoftKeyboard. This means that you can use the SoftKeyboard as a fully functional replacement for a real keyboard.

You activate the SoftKeyboard in the AVR window from the *Keyboard* menu (see page 91).

SoftKeyboard - English(United States)
esc F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 psc slk brk
` 1 2 3 4 5 6 7 8 9 0 - = bksp ins hm pup nlk / * -
tab q w e r t y u i o p [ ] \ del end pdn 7 8 9 +
caps a s d f g h j k l ; ' ent 4 5 6
shift \ z x c v b n m , . / shift ^ 1 2 3 ent
ctrl win alt CM alt win ctrl <= v => 0 .

Figure 31: SoftKeyboard (keyboard layout: English (US))

Secure Keyboard

If you are connected to the iRMC web interface over an HTTP connection, your keystrokes and mouse clicks can be configured to be encrypted in real time before transferred to the managed server (see section "AVR window - Options menu" on page 100).

5.2.6 Redirecting the mouse

The mouse pointer on the managed server is moved synchronously with the mouse on the remote workstation. You configure the mouse redirection settings in the AVR window under *Mouse Mode* in the *Mouse* menu (see page 99).

The settings for the mouse pointer synchronization are supported only for the operating system which runs the managed server.

If the software which controls the mouse is active, sometimes the mouse pointer cannot be synchronized.

5.2.7 Menus and toolbar of the AVR window

The menu bar of the AVR window contains the following menus:

- The *Video* menu allows you to configure the AVR settings and to control the AVR (see page 91).
- The *Keyboard* menu allows you to enable a *SoftKeyBoard* and select the Keyboard language. Beyond that, the *Keyboard* menu allows you to handle special keys when redirecting the keyboards (see page 94).
- The *Mouse* menu allows you to configure your mouse settings (see page 99).
- The *Options* menu allows you to enable/disable keyboard encryption, resize window size to fit your needs, and set the language (German/English/Japanese) in which the menus and dialog boxes of the AVR window are to be shown (see page 100). Additionally, the *Options* menu allows you to request full permission (*Full access* mode) if your AVR session is the one of two currently active AVR sessions which runs in *Restricted access* mode.
- The *Media* menu allows you to use the *Virtual Media* function (see page 102).
- The *Power Control* menu allows you to power the managed server on and off, and to configure the behavior of the server during the next boot operation (see page 102).
- The *Active Users* menu displays the currently active AVR sessions (see page 105).
- The *Help* menu allows you to display information on the version of the currently running KVM Remote Console Utility as well as information on the managed server (see page 105).

The icons of the AVR toolbar provide direct access to frequently used AVR functions.

5.2.7.1 Video menu

The *Video* menu allows you to configure the AVR settings and to control the AVR.

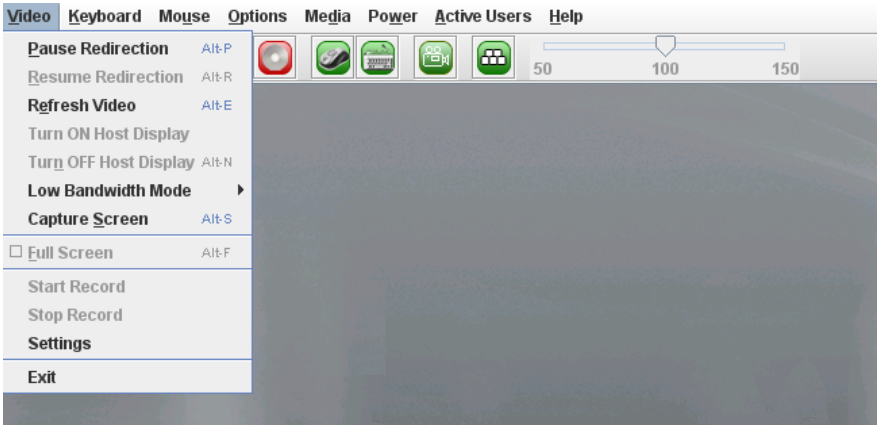


Figure 32: AVR window - Video menu

You can select the following functions in the *Video* menu:

Pause Redirection
Pauses AVR and freezes the AVR view. The AVR view remains frozen until AVR is resumed.

Resume Redirection
Resumes AVR and refreshes the AVR view.

Refresh Video
Refreshes the AVR view.

Turn ON Host Display
Switches on the local monitor of the managed server depending on whether this option is selected/deselected.

This function is disabled in the following cases, even if the local monitor is switched off:

- you are in view-only mode,
- A high-resolution graphics mode is set on the managed server (see table 3 on page 80).
  Local monitor <status> display: *Local Monitor always off*

Turn OFF Host Display

Switches off the local monitor of the managed server depending on whether this option is selected/deselected.

If you are in view-only mode, this function is disabled, even if the local monitor is switched off.

Low Bandwidth Mode

In the case of a reduced data transfer rate, you can configure here a lower bandwidth (bits per pixel, bpp) in terms of color depth for your all AVR sessions at the same iRMC.

Normal

Default.
No lower bandwidth.

8 bpp

8 bpp color depth (256 colors).

8 bpp B&W

8 bpp black&white depth (256 levels of gray).

16 bpp

16 bpp color depth (65 536 colors).

Capture Screen

Makes a screenshot of the AVR view and opens a file browser that allows you to store the related *CapturedScreen.jpeg* file in any directory of your work station or on a network share.

The same functionality is also available via the *Advanced Video Redirection* page of the iRMC Web interface (see "Creating an ASR screenshot" on page 325).

Full Screen

Enables/disables Fullscreen mode.

This option is only enabled if screen resolution on the remote workstation equals screen resolution on the managed server.

Start Video

Creates a video recording the events that are displayed on the monitor at the managed server.

This button is disabled in the following cases:

– You have not yet configured the video settings under the *Settings* option (see below).

– A video recording is currently running.

Stop Video

Stops video recording. This option is only enabled when a video recording session is currently running.

Settings

Opens the *Video Record* dialog box, allowing you to configure the settings required for recording a video.

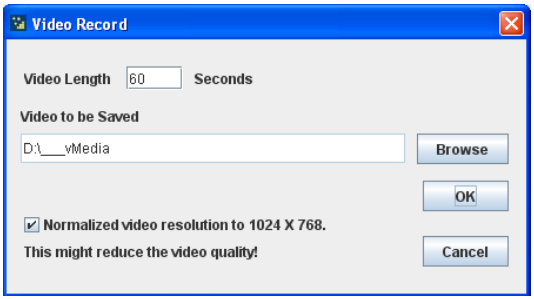


Figure 33: Video record settings

Video Length

Duration of the video (in seconds).

Browse

Opens a browser dialog allowing you to navigate to a directory on your computer or on a network share where the video should be stored.

Video to be Saved

Shows the directory you have selected via *Browse*.

Normalized video resolution to 1024x768

In this case, a separate video file will be created for each resolution change on the monitor of the managed server.

If this option is enabled, a normalized video resolution of 1024x768 is applied to the overall video output, regardless of the actual video resolution on the monitor of the managed server. This may reduce video quality.

OK

Activates your settings and closes the dialog box. The *Start Video* button is now enabled.

Cancel

Closes the dialog box without activating your settings.

Exit

Terminates your own AVR session.

5.2.7.2 AVR window - Keyboard menu

The *Keyboard* menu allows you to handle special keys when redirecting the keyboard (see section "Redirecting the keyboard" on page 87.)

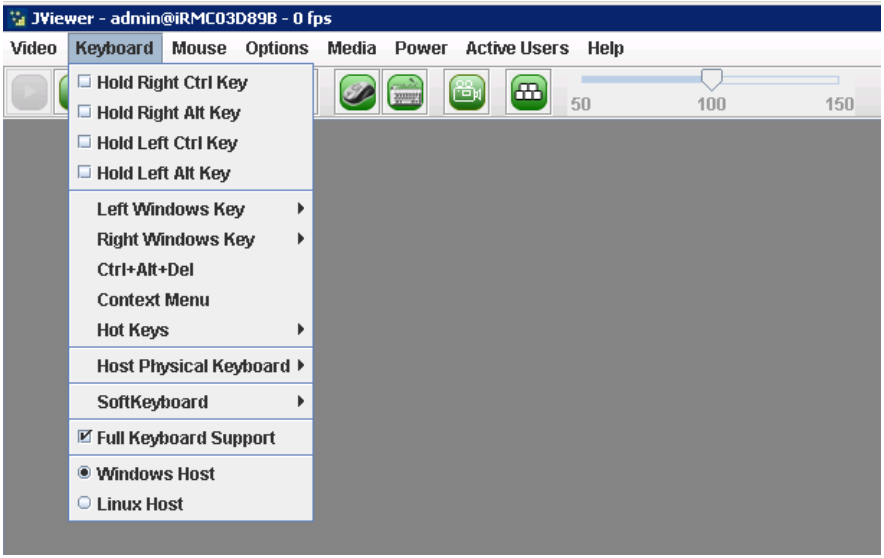


Figure 34: AVR window -Keyboard menu

You can select the following functions in the *Keyboard* menu:

Hold Right Ctrl Key
Holds right Ctrl key pressed.

Hold Right Alt Key
Holds right Alt key pressed.

Hold Left Ctrl Key
Holds left Ctrl key pressed.

Hold Left Alt key
Holds left Alt key pressed.

Left Windows Key
Holds down left Windows key if *Hold Down* is enabled. Otherwise, *Press and Release* is applied.

Right Windows Key
Holds down right Windows key if *Hold Down* is enabled. Otherwise, *Press and Release* is applied.

Ctrl+Alt+Del
Applies the key combination Ctrl + Alt + Del.

Context Menu
Opens the appropriate context menu of the application or the operating system running on the managed server.

Hot Keys
Allows you to define and apply your own hotkeys.

To apply an already defined hotkey, proceed as follows:

1. Click *Hot Keys*.

   To define hotkeys you can also use the *hotkey* icon in the AVR Tool bar (see section "AVR Tool bar" on page 106).

2. In the list of the already defined hotkeys, which is displayed below the *Add Hot Key* item, click the desired hotkey.

To define a new hotkey, proceed as follows:

1. Click *Hot Keys – Add Hot Key*.

   The *User Defined Macros* dialog box opens, which displays the already defined user defined macros (here: A, B):

Figure 35: AVR window - Keyboard menu - Add Hot Key - User Defined Macros (1)

2. Click *Add* to define a new user defined macro.

   The *Add Macro* dialog box opens:

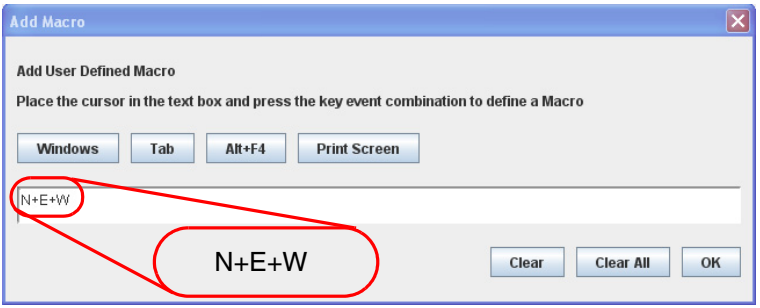


Figure 36: AVR window - Keyboard menu - Add Hot Key - Add Macro

3. Enter your favored combination of up to six keys by using the *Windows*, *Tab*, *Alt+F4*, and *Print Screen* buttons and/or the keys of your keyboard.

   The entered combination is displayed in the *Add Macro* dialog box. Clicking on *Clear All* or *Clear*, you can remove all keys or the rightmost key from the display by clicking on *Clear All* or *Clear*, respectively.

4. Click *OK* to activate the new hotkey.

   The new hot key is now displayed in the *User Defined Macros* dialog box:

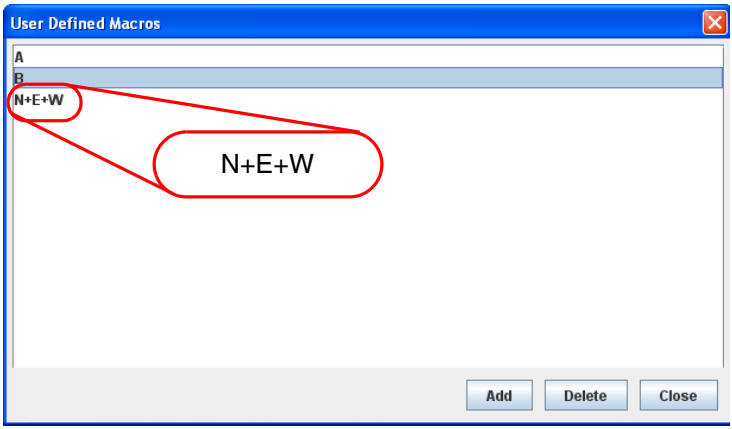


Figure 37: AVR window - Keyboard menu - Add Hot Key - User Defined Macros (2)

5. To remove a hotkey, select the corresponding entry ("B" in the example shown in figure 37 on page 97) and click *Delete*.
6. Click *Close* to close the *User Defined Macros* dialog box

Host Physical Keyboard

Language used on the keyboard of the managed server.

The following options are available:

- *Auto Detect* (default value)
- *English (United States)*
- *English (United Kingdom)*
- *French*
- *French (Belgium)*
- *German (Germany)*
- *German (Switzerland)*
- *Japanese*
- *Spanish*
- *Italian*
- *Danish*
- *Finnish*
- *Norwegian (Norway)*

- *Portuguese (Portugal)*
- *Swedish*
- *Dutch (Netherland)*
- *Dutch (Belgium)*
- *Turkish - F*
- *Turkish - Q*

If you select *AutoDetect*, the AVR assumes that keyboard language is the same on the managed Server and the remote workstation.

SoftKeyboard

Displays the SoftKeyboard (virtual keyboard).

To display the SoftKeyboard in your preferred language, proceed as follows:

1. Move the mouse pointer on *SoftKeyboard* item.

   A list of the available SoftKeyboard languages is shown.

2. Select your preferred language from the list.

   The SoftKeyboard is displayed for the selected language:

SoftKeyboard - English(United States)
esc F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 psc slk brk
` 1 2 3 4 5 6 7 8 9 0 - = bksp ins hm pup nlk / * -
tab q w e r t y u i o p [ ] \ del end pdn 7 8 9 +
caps a s d f g h j k l ; ' ent 4 5 6
shift \ z x c v b n m , . / shift ^ 1 2 3 ent
ctrl win alt CM alt win ctrl <= v => 0 .

Figure 38: AVR window - Keyboard menu - SoftKeyboard

Full Keyboard Support

If enabled, allows you to use, via *SoftKeyboard*, all function keys of the managed server's physical keyboard.

5.2.7.3 AVR window - Mouse menu

The *Mouse* menu allows you to configure the settings for redirecting the mouse.

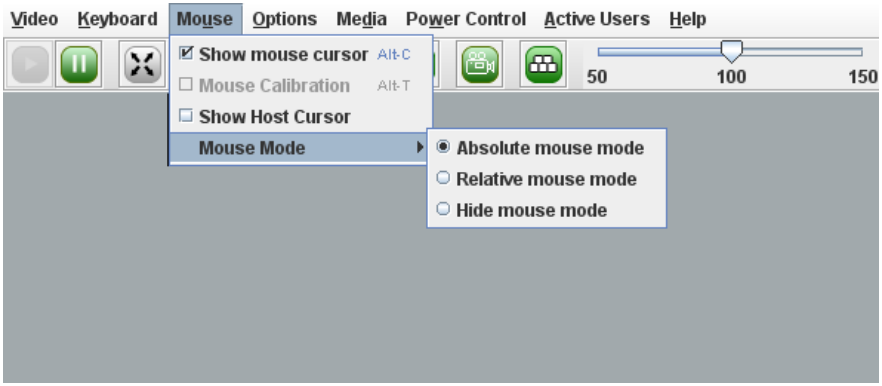


Figure 39: AVR window - Mouse menu

You can select the following functions in the *Mouse* menu:

Show mouse cursor

Displays/hides the mouse pointer of your remote workstation when using the AVR.

Mouse Calibration

Used for calibrating the relative mouse mode. This option is only enabled if *Mouse Mode* - *Relative Mouse Mode* has been selected.

> **i** In relative mouse mode, the mouse pointer of the managed server follows the mouse pointer of the remote workstation in a decelerated manner.

Show Host Cursor

Shows an additional mouse pointer additional to the mouse pointer of the managed server.

> **i** If hardware acceleration of the mouse pointer is set to the maximal value and the Matrox G200e driver is installed, the hardware mouse pointer of the iRMC is activated. Only one mouse pointer is normally displayed in this mode. In this case, the *Show Host Cursor* option can be used to display a second mouse pointer which refers to the managed server.

Mouse Mode

Specifies the mouse mode (*Absolute mouse mode, Relative mouse mode*, or *Hide mouse mode*). In *Hide mouse mode*, the mouse pointer of the remote workstation is not displayed.

Default setting: *Absolute mouse mode.*

Please do always use the *Absolute mouse mode.* Only in case of an older operating system (e.g. RedHat 4) the *Absolute mouse mode* might not work.

For the LSI WEBBIOS, the *Hide mouse mode (Relative)* must be used.

5.2.7.4 AVR window - Options menu

The *Options* menu allows you to enable/disable keyboard/mouse encryption, resize window size to fit your needs, and set the language in which the menus and dialog boxes of the AVR window are to be shown.

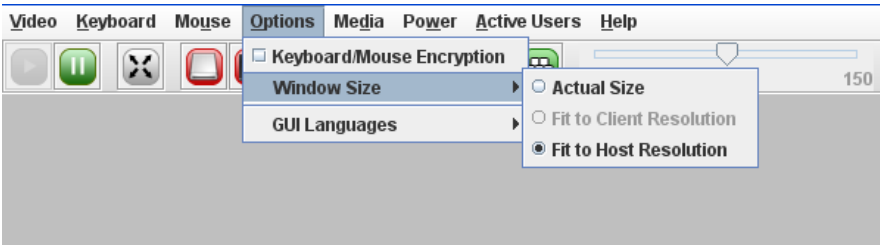


Figure 40: AVR window - Options menu

You can select the following functions in the *Options* menu:

Keyboard/Mouse Encryption

Enables/disables keyboard/mouse encryption i.e. your keystrokes and mouse clicks will be encrypted in real time before being transferred to the managed server.

This option is not offered for selection if you are connected to the iRMC web interface over an HTTPS connection. In this case, all communication between the iRMC web interface and managed server is SSL encrypted.

Window Size

Specifies whether the size of the AVR window is to be shown in its actual size or adapted to the resolution of local monitor of the managed server or to the monitor resolution on the remote workstation.

Actual Size

AVR window is expanded to full monitor size.

Fit to Client Resolution

This option is only enabled if screen resolution on the remote workstation is lower than or equal to screen resolution on the managed server.

If screen resolution on the remote workstation and on the managed server are identical, the *Full Screen* Icon in the AVR Tool bar is enabled (see section "AVR Tool bar" on page 106).

Fit to Client Resolution

If screen resolution on the remote workstation is higher than screen resolution on the managed server, the AVR window

is automatically adjusted.

This is the normal working environment.

GUI Languages

Specifies the language in which the menus and dialog boxes of the AVR window are to be shown (*German*, *English*, *Japanese*).

The selection preset with the GUI language that configured for the iRMC web interface from which the AVR session was started.

Prompts the user of the concurrent AVR session to grant you *Full access.* Depending on this user's decision, you will be granted *Full access* or remain in *Partial access* mode.

Request Full Permission

This option is only offered for selection if two AVR sessions are currently active and your session is the one that is not in *Full access* mode.

Prompts the user of the concurrent AVR session to grant you *Full access*. Depending on this user's decision, you will be granted *Full access* or remain in *Partial access* mode. For details, see "Requesting "Full access" when two AVR sessions are currently active" on page 84.

5.2.7.5 AVR window - Media menu

Via the *Media* you can start the *Virtual Media* wizard. The *Virtual Media* wizard allows you to attach or detach media on the remote workstation as virtual media devices (see chapter "Virtual Media Wizard" on page 111)

Figure 41: AVR window - Media menu

Virtual Media Wizard...

Click *Virtual Media Wizard...* to start the *Virtual Media* wizard allowing you to attach or detach media on the remote workstation as virtual media devices (see chapter "Virtual Media Wizard" on page 111).

5.2.7.6 AVR window - Power Control menu

The *Power Control* menu allows you to power the server up/down or to reboot the server. Beyond that, you can configure the behavior of the server during the next boot operation.

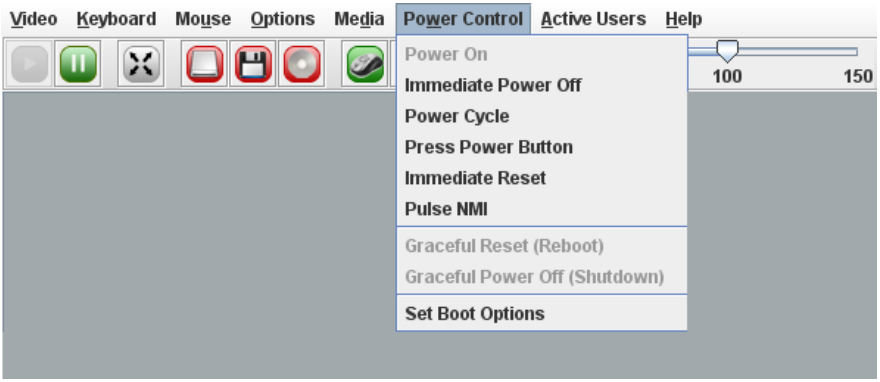


Figure 42: AVR window - Power Control menu

Power On

Switches the server on.

Immediate Power Off

Powers the server down, regardless of the status of the operating system.

Power Cycle

Powers the server down completely and then powers it up again after a configured period. You can configure this time in the *Power Cycle Delay* field of the *ASR&R Options* group (see page 246).

Press Power Button

Depending on the operating system installed and the action configured, you can trigger various actions by briefly pressing the power-off button. These actions could be shutting down the computer or switching it to standby mode.

Immediate Reset

Completely restarts the server (cold start), regardless of the status of the operating system.

Pulse NMI

Initiates a non-maskable interrupt (NMI). A NMI is a processor interrupt that cannot be ignored by standard interrupt masking techniques in the system.

Graceful Reset (Reboot)

Graceful shutdown and reboot.
This option is only available if ServerView agents are installed and signed onto the iRMC as “Connected”.

Graceful Power Off (Shutdown)

Graceful shutdown and power off.
This option is only available if ServerView agents are installed and signed onto the iRMC as “Connected”.

Set Boot Options

Clicking this item opens the *Set Boot Options* dialog box which allows you to configure the behavior of the system the **next** time it is booted.

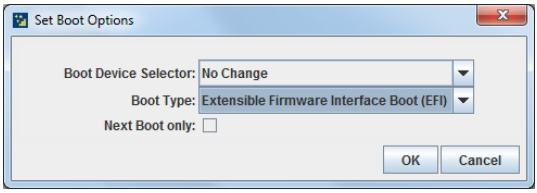


Figure 43: Power Options menu - Set Boot Options

Boot Device Selector

Storage medium you wish to boot from. The following options are available:

- *No Change*: The system is booted from the same storage medium as previously.
- *PXE/iSCSI*: The system is booted from PXE/iSCSI over the network.
- *Hard Drive*: The system is booted from hard disk.
- *CDROM/DVD*: The system is booted from CD /DVD.
- *Floppy*: The system is booted from floppy disk.
- *Bios Setup*: The system enters BIOS setup when booting.

Boot Type

Determines the boot mode in which the system will be started at the next boot.

Depending on the server operating system, the following options are available for selection:

PC compatible (legacy)
The system is booted in legacy BIOS-compatibility mode.

Extensible Firmware Interface Boot (EFI)
The system is booted in UEFI boot mode (only on 64-bit operating systems).

Next Boot Only
The configured settings apply to the next boot only.

5.2.7.7 AVR window - Active Users menu

The *Active Users* menu shows the users currently using the AVR. The green bullet indicates your own session.

Figure 44: AVR window - Active Users menu

5.2.7.8 AVR window - Help menu

Beyond showing general information on JViewer, the *Help* menu displays in the *Server Information* dialog box the information defined under *System Information* in the *System Overview* page of iRMC web interface (see section "System Overview - General information on the server" on page 134).

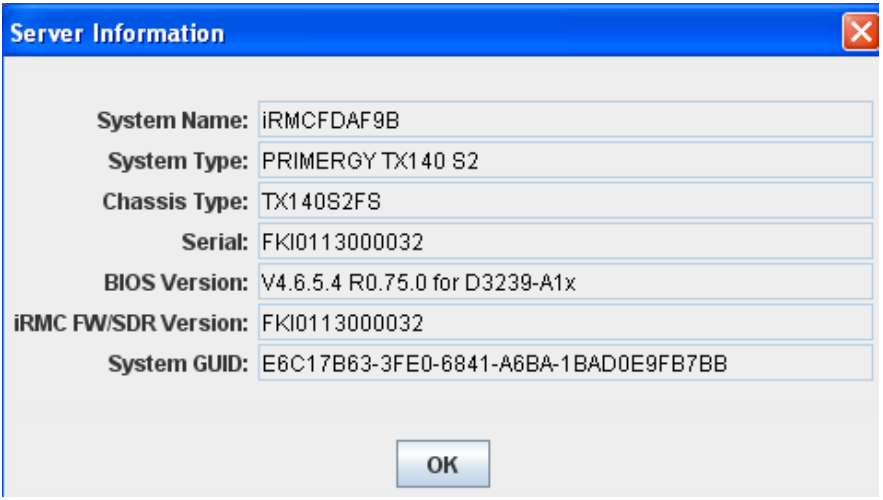


Figure 45: AVR window - Help menu

5.2.7.9 AVR Tool bar

The icons of the AVR toolbar provide direct access to frequently used AVR functions. When moving your mouse pointer on an icon, you often receive assistance in the form of tool tips.

In *Partial access (only Video)* mode only the *Video* and *Active Users* icons can be used.

Figure 46: AVR window - Preferences menu

If Video Redirection is executed in the *Num Lock On* mode on the server side, the client side also turns to *Num Lock ON*.

The following list shows the icons in the *ServerList* window and their meanings:

	Resumes AVR and refreshes the AVR view.
	Pauses AVR and freezes the AVR view. The AVR view remains frozen until AVR is resumed.
	Enables/disables fullscreen mode.
	Indicates whether (green) or not (red) a hard disk/USB redirection is established for this AVR session. Clicking the icon starts the *Virtual Media* wizard (see chapter "Virtual Media Wizard" on page 111).
	Indicates whether (green) or not (red) a floppy redirection is established for this AVR session. Clicking the icon starts the *Virtual Media* wizard (see chapter "Virtual Media Wizard" on page 111).
	Indicates whether (green) or not (red) a CD/DVD redirection is established for this AVR session. Clicking the icon starts the *Virtual Media* wizard (see chapter "Virtual Media Wizard" on page 111).
	Indicates whether (green) or not (grayed out) the mouse pointer of the remote workstation is visible in the AVR window. Clicking the icon allows you to switch between the two modes.
	Displays the SoftKeyboard (see section "AVR window - Keyboard menu" on page 94 for details).
	Depending on whether video settings have already been configured: Starts video recording or opens the *Video Record* dialog box for configuring video settings (see section "Video menu" on page 91 for details).
	Displays the list of available hotkeys To apply a hotkey, click the related item. See section "AVR window - Keyboard menu" on page 94 for details on defining hotkeys.
	The zoom tool bar allows you to stageless enlarge or reduce the AVR view.

Table 4: Icons in the ServerList windows

	Displays for each currently active AVR session the iRMC user who has started the AVR session and the IP address of the remote workstation from which the AVR session was started.
 	If *Local Monitor Off Control* has been enabled in the AVR page of the iRMC web interface, this toggle button allows you to switch between the following states: Indicates that the monitor of the managed server is unlocked, i.e. actions performed on the AVR console can be seen on the monitor of the managed server. Clicking this button will lock the monitor of the managed server. Indicates that the monitor of the managed server is locked, i.e. actions performed on the AVR console cannot be seen on the monitor of the managed server. Clicking this button will unlock the monitor of the managed server.
 	This toggle button allows you to power the managed server on and off: Indicates that the managed server is currently powered on. Clicking this button starts a confirmation dialog for powering the managed server off (immediate power off). Indicates that the managed server is currently powered off. Clicking this button starts a confirmation dialog for powering the managed server on.

Table 4: Icons in the ServerList windows

5.3 Using AVR via HTML5

You have the following options to start AVR:

- Click the *Start Video Redirection (HTML5)* button on the *Advanced Video Redirection (AVR)* page of the iRMC web interface (see page 324)

  or, if displayed,

- Click the *Video Redirection (HTML5)* link in the tree structure of the iRMC web interface.

  The default browser opens, showing you the display on the managed server.

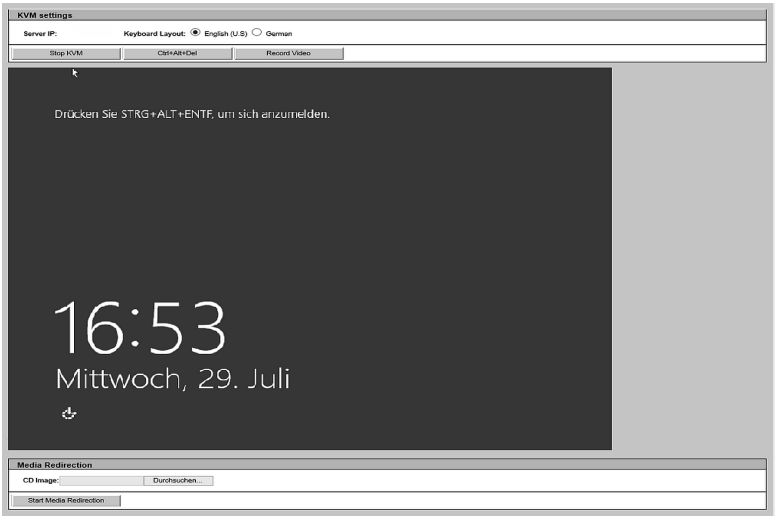


Figure 47: Default Browser displaying AVR redirection using HTML5

The HTML5 page is divided into several groups:

KVM settings

In this group you can handle the redirection via HTML5.

Server IP
: IP address of the server the iRMC resides on.

Keyboard Layout

Defines, how the keystrokes on the physical keyboard are interpreted. You have two options:

– English (US)

– German

Stop KVM

Stops the video redirection.

Ctrl&Alt&Del

Executes Ctrl&Alt&Del on the server.

Record Video

Records the redirected session.

Media Redirection

In this group you can to attach or detach media on the remote workstation as virtual media devices.?

CD Image

Displays the selected ISO image.

Browse

Opens a dialog to navigate to the directory of the storage medium that you want to make available as virtual medium from your remote workstation.

Start Media Redirection

Starts media redirection and connects the provided storage medium as Virtual Media.

Supported Browsers

The HTML5 redirection function is supported by the following browsers:

– Microsoft Internet Explorer as of version 11

– Modzilla Firefox as of version 32

6 Virtual Media Wizard

A valid virtual media (VM) license key is required to use the Virtual Media Wizard.

The Virtual Media Wizard makes available to the managed server a “virtual” drive the source of which you provide on a remote workstation. The virtual media connection between the managed server and the remote workstation is established using the AVR Java applet. Depending on the settings made in the *Virtual Media Options* page, you can connect up to 12 virtual media in total and choose between the following types:

– Physical Floppies and/or Floppy Images (up to 4)

– Physical CD/DVDs and/or CD/DVD ISO Images (up to 4 in total)

– HardDisk drives and/or HardDisk/USB images (up to 4 in total)

It is not necessary that the remote media are physically located on the remote workstation. They can also be located on any network share accessible from this remote workstation.

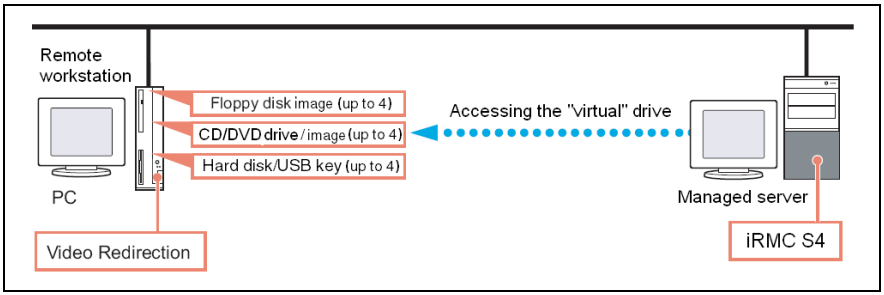


Figure 48: Virtual media provided via a remote connection

6.1 Provision of virtual media at the remote workstation

If you provide the source for a virtual drive on the remote workstation then the virtual functionality supports the following device types:

– Floppy
– CD ISO image
– DVD ISO image
– CD, DVD

Optical storage media (CD, DVD) are automatically displayed (offered for selection).

Devices connected as virtual media are recognized as the USB connected devices by the iRMC. They cannot be used if no USB connection is available (e.g. no USB driver exists).

You can use the virtual drive to install an operating system on your PRIMERGY server from the remote workstation (see chapter "Remote installation of the operating system via iRMC S4" on page 413).

This section provides information on the following topics:

- Starting the Virtual Media wizard
- Handling virtual media via the *Virtual Media* dialog box
  - Providing storage media for the Virtual Media session
  - Connecting storage media as virtual media
  - Clearing Virtual Media connections

6.1.1 Starting Virtual Media wizard

You start the Virtual Media wizard by using the AVR Java applet (see section "Advanced Video Redirection - Start Advanced Video Redirection (AVR)" on page 324).

- Start the iRMC web interface (see section "Logging into the iRMC web interface" on page 122).
- Open the *Advanced Video Redirection* page and click on the *Start Video Redirection (Java Web-Start)* to start Advanced Video Redirection (see section "Advanced Video Redirection - Start Advanced Video Redirection (AVR)" on page 324).

  This opens the AVR window.
- In the menu bar in the AVR window, choose:
  Media - Virtual Media Wizard...

  or click one of the three *Virtual Media* icons in the tool bar.

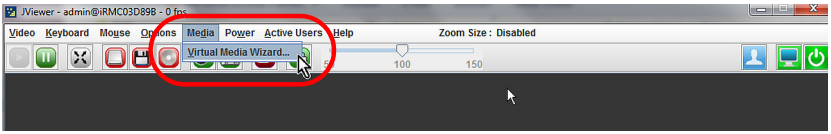


Figure 49: AVR window - Media - Virtual Media Wizard...

The *Virtual Media* dialog box opens.

6.1.2 Virtual Media dialog box

Depending on the settings made in the *Virtual Media* page of iRMC web interface, the *Virtual Media* dialog box displays from 0 up to 4 panels for each of the following three media types:

- Floppy Key-Media (Floppy Images).
  Default: No Floppy Key-Medium is displayed.
- CD/DVD Media ISO images.
  - CD/DVD Media ISO images
  - CD/DVD drives (i.e. physical CD/DVD)

  Default: 2 CD/DVD Media ISO images are displayed.
- Hard disk/USB Key Media
  - Hard disk/USB Key images
  - Physical drive (fixed drive)

  Default: 1 Hard disk/USB Key Medium is displayed.

Physical storage devices must be mounted on Linux systems.

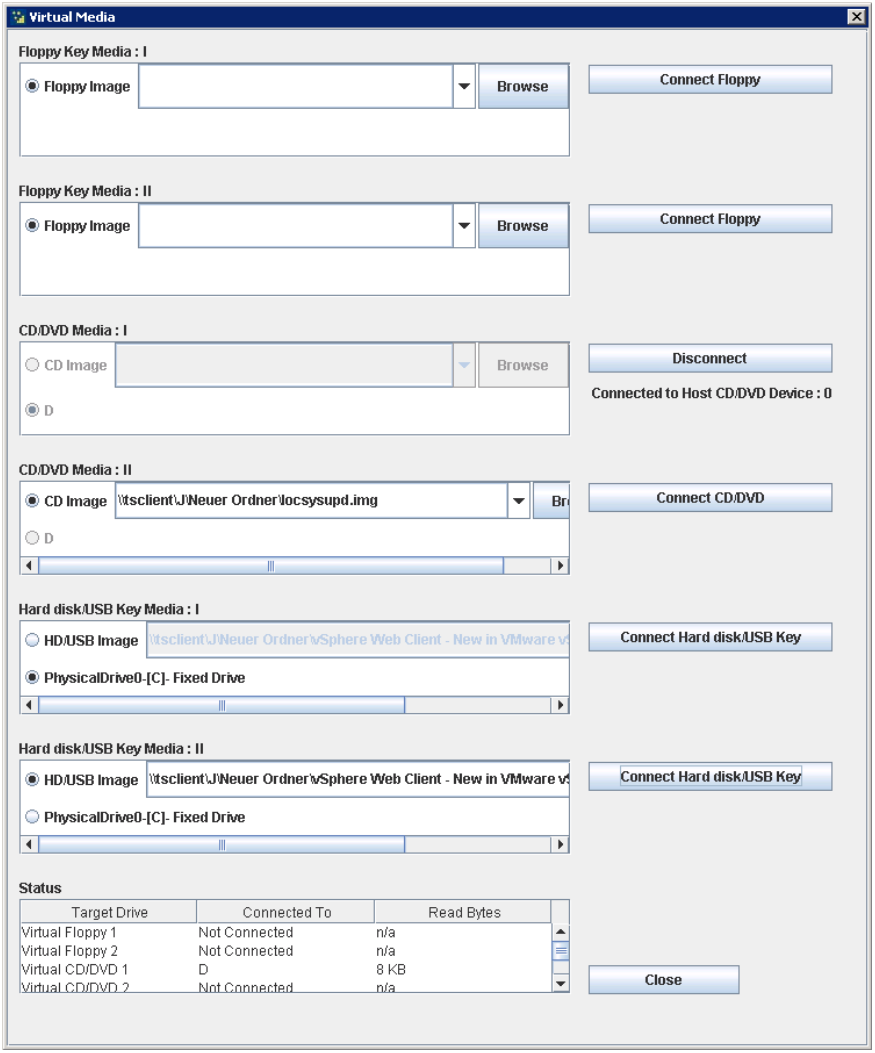


Figure 50: Virtual Media dialog box

The *Status* panel informs on both the storage media which are currently available for virtual media connections and the storage media which are currently connected as virtual storage media.

6.1.3 Provision of storage media for virtual media

At any time during your AVR session, you can the following options:

– Adding additional virtual media connections to your already existing ones.

– Disconnect individual virtual media connections.

For providing a storage medium of the favored type (e.g. a DVD Image), proceed as follows:

Physical drives are automatically displayed. Browsing is only required for providing images.

► In the appropriate panel of the *Vitual Media* dialog box, click *Browse*.

The *Open* file browser dialog box opens.

► In the *Open* dialog box, navigate to the directory of the storage medium that you want to make available as virtual medium from your remote workstation.

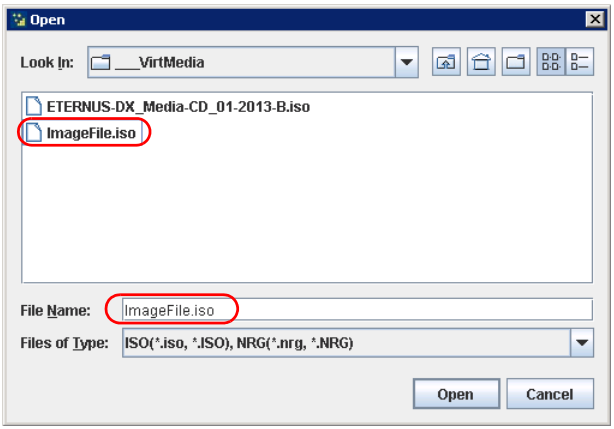


Figure 51: Open dialog box (Windows)

► Select the required device type under *Files of Type*.

Physical storage devices must be mounted on Linux systems.

- ► Specify the storage medium you wish to connect as a virtual medium under *File Name*:
  - – In the case of an ISO image (ISO/NRG image), enter the file name. Alternatively, click on the file name in the Explorer.
  - – In the case of a drive, enter the name of the drive, e.g.
    - – “D” for drive D (Windows)
    - – */dev/...* (Linux)
- ► Click *Open* to confirm your selection.

  The selected storage medium is made available as a virtual medium and displayed in the corresponding panel of the *Virtual Media* dialog box.

Display in the “Storage Devices” dialog (Windows)

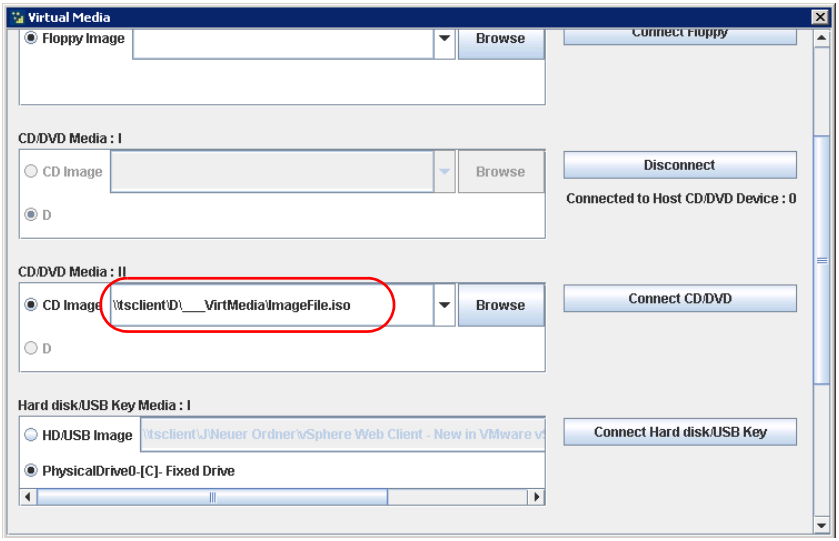


Figure 52: Virtual Media dialog box: The provided storage medium is displayed.

- ► Click the corresponding *Connect...* button to connect the provided storage medium as Virtual Media.

  The selected storage medium is made available as a virtual medium and displayed in the corresponding panel of the *Virtual Media* dialog box.

Display in the "Storage Devices" dialog (Windows)

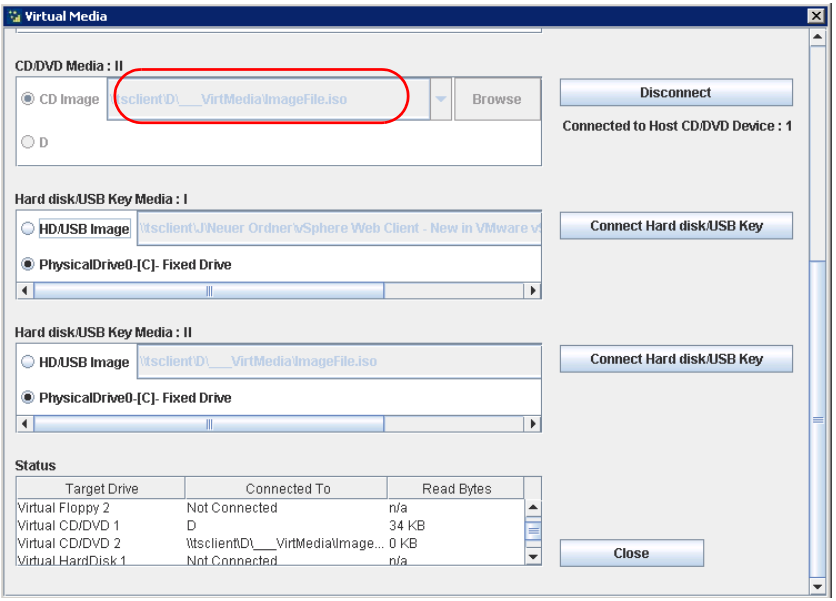


Figure 53: Virtual Media dialog box: The provided storage medium is displayed.

6.1.4 Clearing Virtual Media connections

A Virtual connection is automatically released in the following cases:

- The AVR session is disconnected.
- The AVR session which established the virtual media connection changes into "read-only" mode due to a successful "Full Access" request of a second AVR session.
- The settings configured in the *Virtual Media Options* page are changed (see page 333).

► Open the *Virtual Media* dialog (see section "Starting Virtual Media wizard" on page 113).

► “Safely remove” the storage device, i.e. ensure that no more applications/programs are accessing the storage media.

► To clear a *Virtual Media* connection, click the corresponding *Disconnect* button.

7 iRMC web interface

The iRMC not only has its own operating system, but also acts as a web server, providing its own interface. You can choose whether to show the menus and dialog boxes of the iRMC web interface in German, English or Japanese.

When you enter values in the web interface, you often receive assistance in the form of tool tips.

Third Party Licenses can be seen by clicking the *Third Party Licenses* link in the navigation bar of the web interface (see page 130).

7.1 Logging into the iRMC web interface

► Open a web browser on the remote workstation and enter the (configured) DNS name (see page 264) or IP address of the iRMC.

Different login screens appear depending on whether LDAP access to a directory service has been configured for the iRMC (*LDAP Enabled* option, see page 295):

If no login screen appears, check the LAN connection (see section "Testing the LAN interface" on page 47).

– LDAP access to the directory service is not configured for the iRMC (*LDAP Enabled* option is not activated) and *Always use SSL Login* option (see page 295) is not activated:

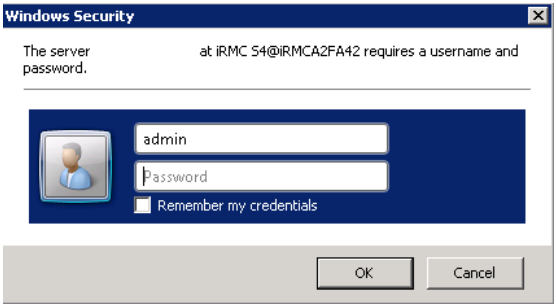


Figure 54: Login screen for the iRMC web interface (LDAP access not configured and the “Always use SSL login” option is not selected)

► Type in the data for the default administrator account.

User name: admin

Password: admin

Both the *User name* and the *Password* are case-sensitive.

For reasons of security, it is recommended that you create a new administrator account once you have logged in, and then delete the default administrator account or at least change the password for the account (see "User “<name>” Configuration - User configuration (details)" on page 283).

► Click *OK* to confirm your entries.

– LDAP access to the directory service is configured for the iRMC (*LDAP Enabled* option is activated) or *Always use SSL Login* option is activated):

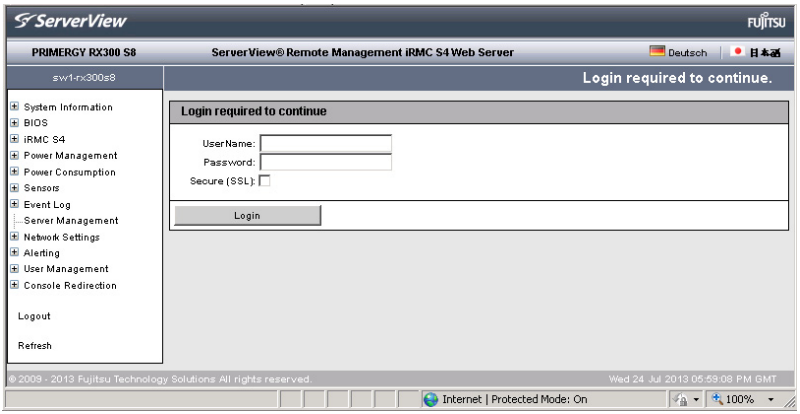


Figure 55: Login screen for the iRMC web interface (LDAP access configured)

The user name and password are always SSL-protected when they are transmitted. If you activate the *Secure (SSL)* option, all communication between the web browser and the iRMC is carried out over HTTPS.

► Type in the data for the default administrator account.

User name: admin

Password: admin

For reasons of security, it is recommended that you create a new administrator account once you have logged in, and then delete the default administrator account or at least change the password for the account (see "User “<name>” Configuration - User configuration (details)" on page 283).

► Click *Login* to confirm your entries.

The web interface opens showing the *System Information page* (see page 133).

7.2 Required user permissions

The following table 5 provides an overview of the permissions which are required in order to use the individual functions available at the iRMC web interface.

Functions in the iRMC web interface	Permitted with IPMI privilege level				Required iRMC -specific permission			
	OEM	Administrator	Operator	User	Configure User Accounts	Configure iRMC Settings	Video Redirection Enabled	Remote Storage Enabled
System Information								
Open the *System Overview* page.	X	X	X	X				
Switch identification LED on/off.	X	X	X	X				
Set *Asset Tag Configuration*.						X		
Edit *Operating System Informations*.[1)]						X		
Open the *System Components* page.	X	X	X	X				
Reset Memory Error Counter.						X		
View SPD Data.	X	X	X	X				
Open/edit the *AIS Connect* page.	X	X						
Open/edit the *SystemReport* page.	X	X						
Open the *Network Inventory* page.	X	X	X	X				
Open/edit the *Driver Monitor*page.	X	X	X	X				
RAID Information								
Open the *RAID Controller* page.[2)]	X	X						
Open the *Physical Discs* page.[2)]	X	X						
Identify RAID physical disk (*Locate* button).[2)]	X	X						
View *Physical Drives* page.[2)]	X	X						

Table 5: Permissions to use special the iRMC web interface

Functions in the iRMC web interface	Permitted with IPMI privilege level				Required iRMC -specific permission			
	OEM	Administrator	Operator	User	Configure User Accounts	Configure iRMC Settings	Video Redirection Enabled	Remote Storage Enabled
BIOS								
Open the *Backup/Restoration of BIOS Single Parameter Settings* page.[1)]	X	X	X	X				
Edit *Backup/Restoration of BIOS Single Param. Settings*[1)]	X	X						
Open the *BIOS Update Settings* page.[1)]	X	X	X	X				
Perform BIOS update [1)]	X	X						
iRMC								
Open the *iRMC S4 Information* page.	X	X	X	X				
Reboot iRMC S4.	X	X						
Load license key onto the iRMC.						X		
Set *Miscellaneous Options*.						X		
Open the *Save iRMC S4 Time* page.	X	X	X	X				
Change iRMC Time Options.						X		
Open the *Save iRMC S4 FW Settings* page.					X	X		
Select *Include User Settings*.					X			
Select all other Settings.						X		
Import iRMC settings in WinSCU XML format.					X	X		
Open/edit the *Certificate Upload* page.						X		
Open/edit the *Generate a self-signed RSA Cert.* page.						X		
Open *iRMC S4 Firmware Update* page.	X	X	X	X				
Set firmware selector.	X	X						
Perform *Firmware Update from File*.	X	X						
Update firmware via TFTP (*iRMC S4 TFTP Settings*).	X	X						

Table 5: Permissions to use special the iRMC web interface

Functions in the iRMC web interface	Permitted with IPMI privilege level				Required iRMC -specific permission			
	OEM	Administrator	Operator	User	Configure User Accounts	Configure iRMC Settings	Video Redirection Enabled	Remote Storage Enabled
Power Management								
Open *Power On/Off* page.	X	X	X	X				
Modify *Boot Options*.						X		
Use *Power Control*.	X	X	X					
Open/edit the *Power Options* page.						X		
Open *Power Supply Info* page.	X	X	X	X				
Power Consumption								
Open/edit *Power Consumption Configuration* page.						X		
Open *Current Power Consumption* page. 2)						X		
Open/edit *Power Consumption History* page.2)						X		
Sensors								
Open *Fans* page.	X	X	X	X				
Start fan test (*Fan Test* group).	X	X	X	X				
Set *Fan Check Time* (*Fan Test* group).						X		
Select individual Fans (*System Fans* group).						X		
Set *Fan Fail Action / Delay Time.*						X		
Open *Temperature* page.	X	X	X	X				
Define action on critical temperature.						X		
Open *Voltages* page.	X	X	X	X				
Open *Power Supply* page.	X	X	X	X				
Configure power supply redundancy.						X		
Open *Component Status* page.	X	X	X	X				
Event Log								

Table 5: Permissions to use special the iRMC web interface

Functions in the iRMC web interface	Permitted with IPMI privilege level				Required iRMC -specific permission			
	OEM	Administrator	Operator	User	Configure User Accounts	Configure iRMC Settings	Video Redirection Enabled	Remote Storage Enabled
Open *System Event Log Content* page.	X	X	X	X				
Clear the system event log (SEL).	X	X	X					
Save event log (SEL).	X	X	X	X				
Define the severity for the display of SEL entries.	X	X	X	X				
Open *Internal Event Log Content* page.	X	X						
Clear the internal event log (iEL).	X	X						
Save event log (iEL).	X	X						
Define the severity for the display of SEL entries.	X	X						
Open *Event Log Configuration* page.	X	X	X	X				
Modify Default Web Interface display filtering.						X		
Change SEL Mode.						X		
Change Helpdesk Information.						X		
Server Management								
Open/edit *Server Management Info.* page.						X		
Network Settings								
Open/edit the *Network Interface* page.						X		
Open/edit the *Ports and Netw. Services* page.						X		
Open/edit *DNS Configuration* page.						X		
Open/edit *SNMP Configuration* page						X		

Table 5: Permissions to use special the iRMC web interface

Functions in the iRMC web interface	Permitted with IPMI privilege level				Required iRMC -specific permission			
	OEM	Administrator	Operator	User	Configure User Accounts	Configure iRMC Settings	Video Redirection Enabled	Remote Storage Enabled
Alerting								
Open/edit *SNMP TRAP Alerting* page.						X		
Open/edit the *Email Alerting* page.						X		
User Management								
Open/edit the *iRMC S4 User* page.					X			
Open/edit the *Directory Service Config.* page.						X		
Open *CAS Configuration* page.					X	X		
Edit *CAS Generic Configuration*.						X		
Edit *CAS User Privilege and Permissions*					X			
Console Redirection								
Open the *BIOS Text Console* page.	X	X	X	X				
Modify the *BIOS Console Redirection Options*.						X		
Start Text Console Redirection.	X	X	X	X		X		
Open/edit the *Advanced Video Redirection* page.							X	
Virtual Media								
Open/edit the *Virtual Media* page.[2)]	X	X	X	X				X
Open/edit the *Remote Image Mount* page.[2)]	X	X	X	X				X
Open/edit the *Media Options* page.[2)]	X	X	X	X				X
Lifecycle Management								
Open/edit the *Update Settings* page.[2)]	X	X						X
Open/edit the *Online Update* page.[2)]	X	X						X
Open/edit the *Offline Update* page.[2)]	X	X						X
Open/edit the *Custom Image* page.[2)]	X	X						X

Table 5: Permissions to use special the iRMC web interface

Functions in the iRMC web interface	Permitted with IPMI privilege level				Required iRMC -specific permission			
	OEM	Administrator	Operator	User	Configure User Accounts	Configure iRMC Settings	Video Redirection Enabled	Remote Storage Enabled
Open/edit the *PrimeCollect* page.[2)]	X	X						X

[1)] Action is only possible if no agents are running.

[2)] Feature is not available on all systems.

Table 5: Permissions to use special the iRMC web interface

7.3 Structure of the user interface

The iRMC web interface is structured as follows:

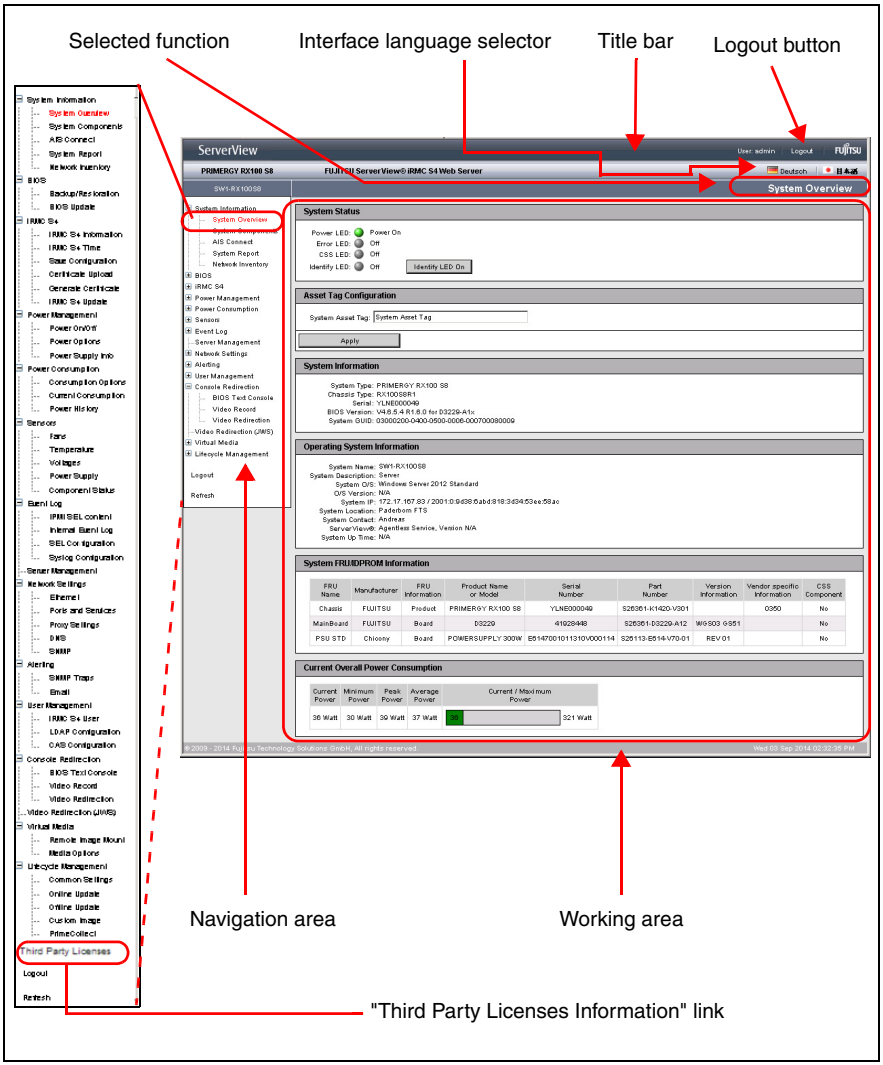


Figure 56: Structure of the iRMC web interface

Choosing the language for the iRMC web interface

On the right of the black bar above the work area, you will find a flag icon. Click this icon to choose the language (German / English / Japanese) used to display the navigation area, menus and dialog boxes of the web interface.

Navigation area

The navigation area contains the menu tree structure whose nodes combine the links to the individual iRMC functions arranged on a task basis. When you click one of these links, the link is enabled and the work area for that function is displayed showing any output, dialog boxes, options, links and buttons.

Below the links to the individual iRMC functions, you will find the links *Logout* and *Refresh*:

- *Logout* allows you to terminate the iRMC session after you have confirmed this in a dialog box. Different login screens appear after the session has been closed depending on whether LDAP access to a directory service has been configured for the iRMC (*LDAP Enabled* option, see page 295):
  - If LDAP access to the directory service is not configured for the iRMC (*LDAP Enabled* is not activated) and then *Always use SSL login* option (see page 295) is deactivated, the following login screen appears:

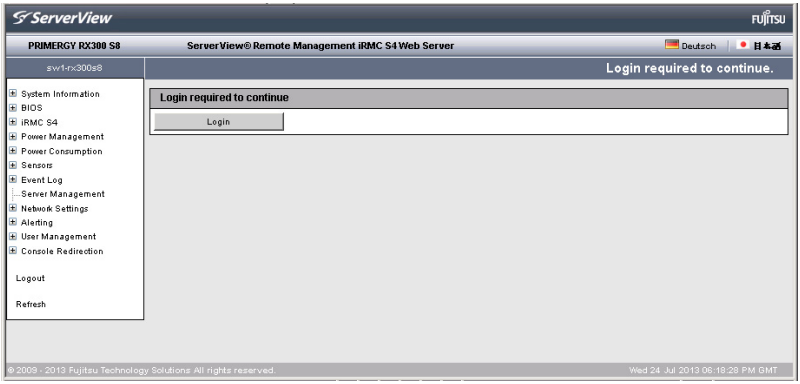


Figure 57: Login page (after logging out)

Click *Login* to open the login screen of the web interface (see figure 54 on page 122). This allows you to log in again if you wish.

– If LDAP access to the directory service is configured for the iRMC (*LDAP Enabled* option is activated) or the *Always use SSL login* option (see page 295) is deactivated, the appropriate login screen appears (see figure 55 on page 123).

- Click *Refresh* to refresh the contents of the iRMC web interface.

  Alternatively, you can configure the interface to automatically update the contents periodically (see "Enable Auto Refresh" on page 260).

7.4 System Information - Information on the server

The *System Information* entry contains the links to the following pages:

– "System Overview - General information on the server" on page 134
– "System Component Information - Information on the server components" on page 139
– "AIS Connect - Configuring and using AIS Connect" on page 142
– "System Report" on page 147
– "Network Inventory" on page 151
– "Driver Monitor" on page 152

7.4.1 System Overview - General information on the server

The *System Overview* page provides information on

- the system status,
- asset tag configuration
- system (general information)
- the operating system of the managed server,
- system FRUs (Field Replaceable Units) / IDPROM.
- current overall power consumption of the managed server

In addition, the *System Overview* page allows you to enter a customer-specific asset tag for the managed server.

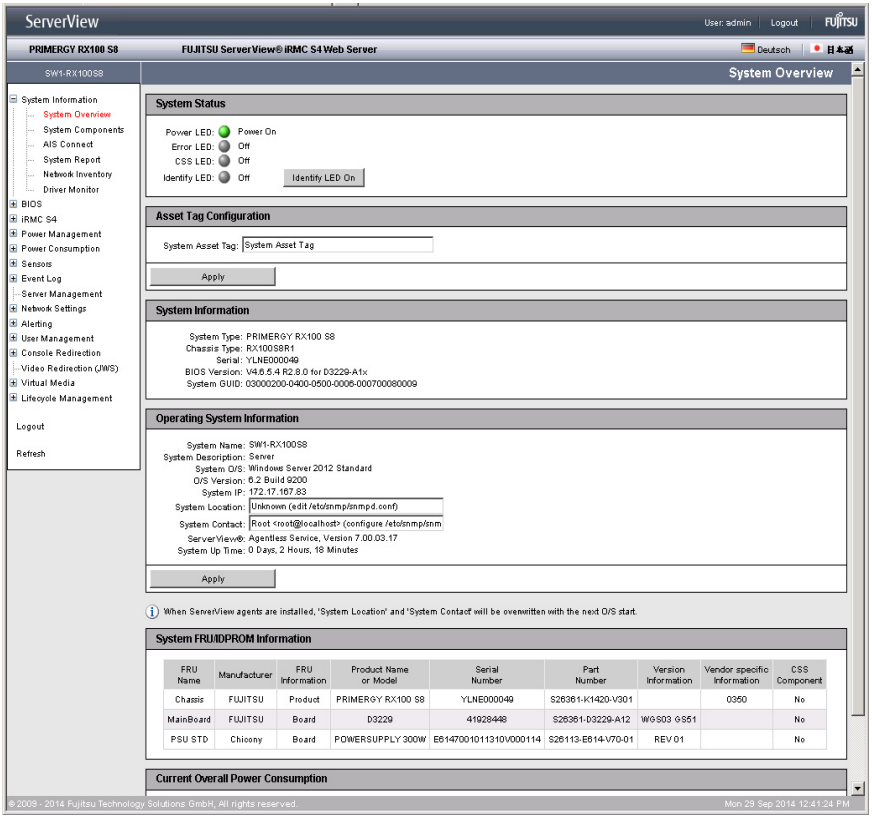


Figure 58: System Overview page

System Status

The status of the global error LED, the CSS LED and the identification LED are shown under *System Status*. You can also switch the PRIMERGY identification LED on and off.

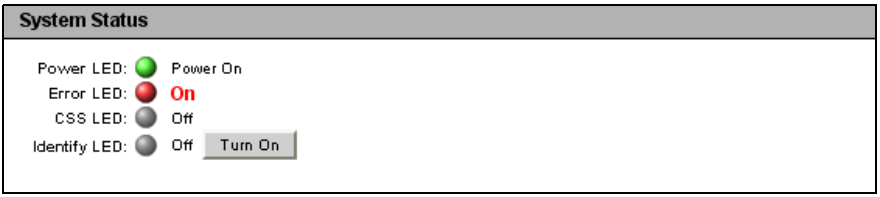


Figure 59: System Overview page - System Status

Power LED

Power status of the server.
The following statuses are possible:

– On: “Power ON” (green)
– Off: “Power OFF” (orange)

Error LED

Informs about the server‘s Global Error LED:

Status Info (iRMC)	Global Error LED on the Server	Overall system status
off	does not light up.	No critical event.
on	lights red.	Prefailure event for a non CSS component.
blinking	flashes red.	Critical event.

CSS LED

Informs about the server’s CSS (Customer Self Service) LED:

Status Info (iRMC)	CSS LED on the Server	Overall system status
off	does not light up.	The server is operational.
on	lights orange.	Prefailure event for a CSS component.
blinking	flashes orange.	Defective CSS component.

Identify LED

Server identifier.
The following statuses are possible:

– On (blue)
– Off (grey)

Turn On/Turn Off

Click *Turn On / Turn Off* to toggle the PRIMERGY identification LED on and off.

Asset Tag Configuration

Under *Asset Tag Configuration*, you can enter a customer-specific asset tag for the managed server.

The customer-specific asset tag allows you to assign the server an inventory number or other identifier of your choice.

With Windows-based systems, this customer-specific asset tag is provided automatically by the WMI (Windows Management Instrumentation). It can then be evaluated by in-house tools or used for integration in enterprise management systems (such as CA Unicenter).

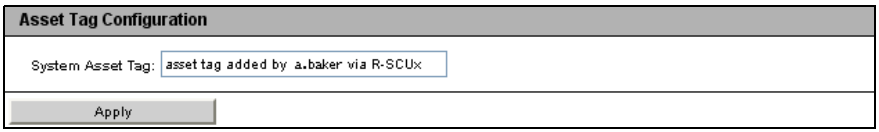


Figure 60: System Overview page - Asset Tag Configuration

System Asset Tag

You can enter the asset tag here.

► Click *Apply* to accept the asset tag.

System Information

System Information lists information on the managed server.

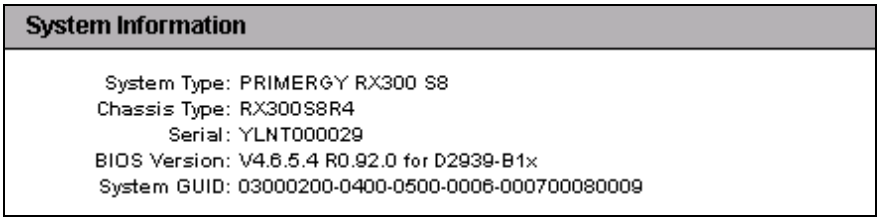


Figure 61: System Overview page - System Information

Operating System Information

Operating System Information lists information on the operating system of the managed server and whether the ServerView agents are available or the managed server ServerView Agentless Service are available on the managed server.

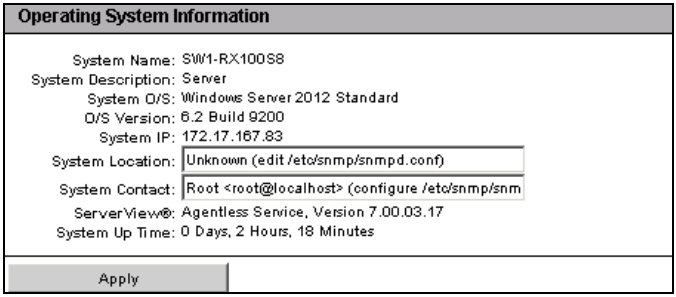

Operating System Information
System Name: SW1-RX100S8
System Description: Server
System O/S: Windows Server 2012 Standard
O/S Version: 6.2 Build 9200
System IP: 172.17.167.83
System Location: Unknown (edit /etc/snmp/snmpd.conf)
System Contact: Root <root@localhost> (configure /etc/snmp/snm
ServerView®: Agentless Service, Version 7.00.03.17
System Up Time: 0 Days, 2 Hours, 18 Minutes
Apply

Figure 62: System Overview page - Operating System Information

If neither a ServerView agent nor the ServerView Agentless Service is running, you can edit all fields of the *Operating System Information* group, otherwise these fields are not editable.

If the ServerView agents are running, all values are set by the ServerView agents. The values can be manually adjusted, but only in-band.

If the ServerView Agentless Service is running, the values are set except the values for *System Location* and *System Contact*, which cannot be accessed by the ServerView Agentless Service. The values for *System Location* and *System Contact* can be set manually.

System FRU / IDPROM Information

Information on the FRUs (**F**ield **R**eplaceable **U**nits) is listed under *System FRU/IDPROM Information*. FRUs are system components that can be released and removed from the system. The *CSS Component* column indicates for each of the components whether the CSS (**C**ustomer **S**elf **S**ervice) functionality is supported.

System FRU/IDPROM Information

FRU Name	Manufacturer	FRU Information	Product Name or Model	Serial Number	Part Number	Board Version or Other Info	CSS Component
Chassis	FSC	Product	PRIMERGY RX100 S5	YK2FXXXXXX	S26361-K1160-VXXX	0225	No
MainBoard	FSC	Product	PRIMERGY RX100 S5	YK2Fxxxxxx	S26361-K1160-Vxxx	0225	No
MainBoard	FSC	Board	D2542	5554Y01001G746001C4J0A1	S26361-D2542-B10	WGS01 GS01	No
PSU	DELTA	Board	DPS-350UB A	AFDC0731000255	56.04350.111	S2	No

Figure 63: System Overview page - System FRU / IDPROM Information

Current Overall Power Consumption

This option is not supported for all PRIMERGY servers.

Current Overall Power Consumption

Current Power	Minimum Power	Peak Power	Average Power	Current / Maximum Power
182 Watt	166 Watt	168 Watt	167 Watt	182 / 886 Watt

Figure 64: System Overview page - Current Overall Power Consumption

Under *Current Overall Power Consumption* you can see all the measurements current, minimum, maximum and average power consumption for the server in the current interval.

A graphical display also shows the current power consumption of the server compared with the maximum possible power consumption.

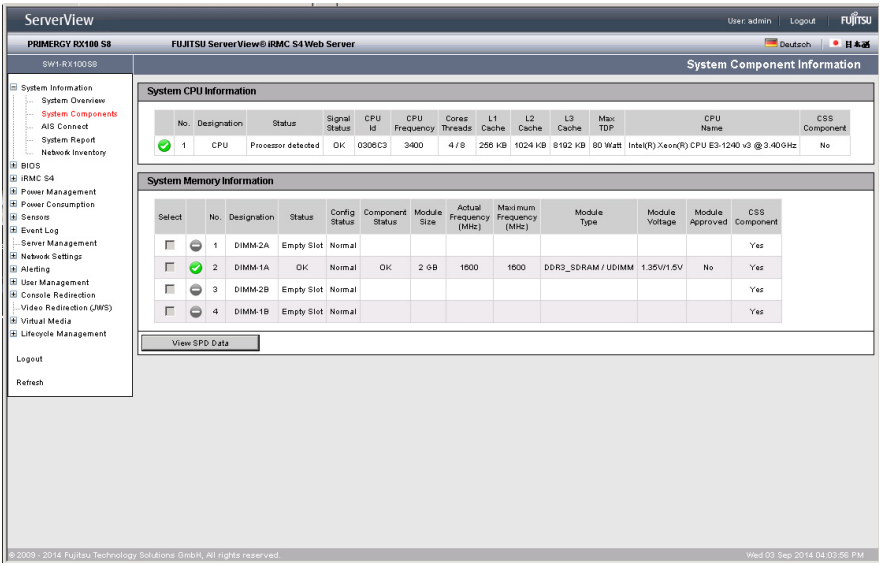
7.4.2 System Component Information - Information on the server components

The *System Component Information* page provides information on the CPU and the main memory modules. The *CSS Component* column indicates for each of the components whether the CSS (**C**ustomer **S**elf **S**ervice) functionality is supported.

The following status icons indicate the possible statuses of the system components:

	OK: Component status is okay.
	Component slot is empty.
	Warning: The status of the component has deteriorated.
	Fault: The component has a fault.

Table 6: Status of the system component


ServerView
User: admin | Logout | FUJITSU
PRIMERGY RX100 S8
FUJITSU ServerView® iRMC S4 Web Server
Deutsch | 日本語
SW1-RX100S8
System Component Information
System Information
System Overview
System Components
AIS Connect
System Report
Network Inventory
BIOS
iRMC S4
Power Management
Power Consumption
Sensors
Event Log
Server Management
Network Settings
Alerting
User Management
Console Redirection
Video Redirection (JWS)
Virtual Media
Lifecycle Management
Logout
Refresh
System CPU Information
No. | Designation | Status | Signal Status | CPU Id | CPU Frequency | Cores Threads | L1 Cache | L2 Cache | L3 Cache | Max TDP | CPU Name | CSS Component
1 | CPU | Processor detected | OK | 0306C3 | 3400 | 4 / 8 | 256 KB | 1024 KB | 8192 KB | 80 Watt | Intel(R) Xeon(R) CPU E3-1240 v3 @ 3.40GHz | No
System Memory Information
Select | No. | Designation | Status | Config Status | Component Status | Module Size | Actual Frequency (MHz) | Maximum Frequency (MHz) | Module Type | Module Voltage | Module Approved | CSS Component
1 | DIMM-2A | Empty Slot | Normal | Yes
2 | DIMM-1A | OK | Normal | OK | 2 GB | 1600 | 1600 | DDR3_SDRAM / UDIMM | 1.35V/1.5V | No | Yes
3 | DIMM-2B | Empty Slot | Normal | Yes
4 | DIMM-1B | Empty Slot | Normal | Yes
View SPD Data
© 2009 - 2014 Fujitsu Technology Solutions GmbH, All rights reserved.
Wed 03 Sep 2014 04:03:56 PM
Figure 65: System Component Information page

On PRIMERGY servers with support for TPM (Trusted Platform Module), this page indicates whether TPM is enabled or disabled.

System CPU Information

This group provides information on the status, IDs, CSS capability, performance etc. of the CPU(s) in the managed PRIMERGY server.

System Memory Information

This group provides information on the status, IDs, CSS capability and performance of the main memory modules in the managed PRIMERGY server.

Select

Here you can select individual memory modules to which the action you select under *Please select memory action from* list is to be applied.

Select all

Selects all memory modules.

Deselect all

Cancels your selection.

Please select memory action from list

This list, which is only displayed in case of an error, allows you to select an action to be applied to the selected memory modules.

The following actions are offered for selection:

Reset Error Counter

Resets the error counter.

In the case of an iRMC or ServerBlade, it is no longer necessary to explicitly reset the error counter because new modules are detected automatically with the error counter set to 0.

Enable Module

Enables the memory module.

Apply to the selected modules

Applies the selected action to the selected memory modules.

View SPD Data / No SPD Data

Clicking the toggle button *View SPD Data / No SPD Data* shows or hides vendor-specific details (**S**erial **P**resence **D**etect (SPD) data) for the individual memory components.

The SPD data for a memory component is stored in an EEPROM integrated in the component and serves to allow the BIOS to automatically detect this memory component (RAM, DIMM).

7.4.3 AIS Connect - Configuring and using AIS Connect

The *AIS Connect* page allows you to configure the embedded AIS Connect functionality of the iRMC.

AIS Connect (AutoImmuneSystems©) enables a PRIMERGY server to be remotely monitored and in some cases also be controlled by the Service System of Fujitsu Technology Solutions where a service technician will control the further workflow.

AIS Connect functionality includes:

– Enabling the iRMC embedded AIS agent to send auto-calls to the Technical Support of Fujitsu Technology Solutions.

– Allowing the Technical Support of Fujitsu Technology Solutions to retrieve PrimeCollect archives from the iRMC.

– Allowing the Technical Support of Fujitsu Technology Solutions to retrieve System Report data from the iRMC.

– Allowing the Technical Support of Fujitsu Technology Solutions to connect to the iRMC web interface of the iRMC.

Sending PrimeCollect archives requires a valid eLCM license key (see "License Key" on page 176).

AIS Connect establishes a connection between the embedded AIS Connect client (AIS agent) running on the iRMC and the Service System of Fujitsu Technology Solutions. This connection, which allows a technician to connect from remote to the iRMC even if the iRMC is not accessible directly via LAN, is used for transferring system information (PrimeCollect Archives, System Reports etc.) in case of an error.

Embedded AIS Connect can work in two different modes:

– *Warranty Mode*

  In *Warranty Mode*, the only function of AIS Connect is to contact the Enterprise Environment (Service System) on a daily basis and to send data created by Prime Collect only on the user's demand.

– *Contract Mode*

  In *Contract Mode*, AIS Connect reports any issues occurring when the server is operational.It also sends PrimeCollect report and SystemReport along with the alarm data.

Warranty Mode is the default. Only the technicians managing the enterprise environment can change the *Warranty Mode* to *Contract Mode*. This requires to set up a connection.

The handling of the embedded AIS Connect feature of the iRMC is described below. For more detailed information on the embedded AIS functionality, please refer to the manual "ServerView embedded Lifecycle Management (eLCM)".

Alternatively, you can download and automatically evaluate the generated XML file by using a cURL or Visual Basic script (see section "Scripted download and automatic evaluation of the iRMC report" on page 467).

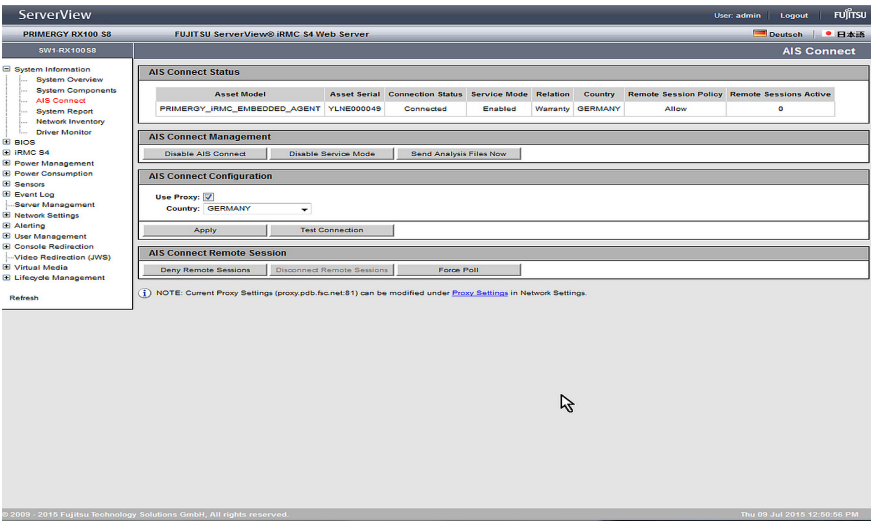


Figure 66: AIS Connect page

AIS Connect Status

The *AIS Connect Status* group provides status information on the embedded AIS agent. The value "PRIMERGY iRMC EMBEDDED AGENT" for *Asset Model* is fix for all PRIMERGY servers. *Relation* indicates the mode in which AIS Connect is currently working (*Warranty Mode* or *Contract Mode*). The remaining values displayed in the *AIS Connect Status* group depend on the actions started and values configured in the *AIS Connect* page.

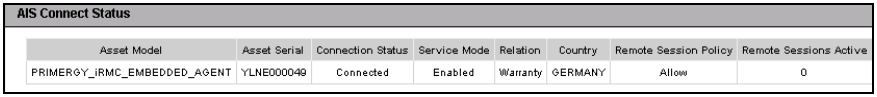


Figure 67: AIS Connect page - AIS Connect Status

AIS Connect Management

The *AIS Connect Management* group allows you to enable/disable AIS Connect. If AIS Connect currently is in *Contract Mode*, you also have the option to switch the embedded AIS Connect agent to the Service Mode, in which the agent ignores all hardware-triggered alarms.

Figure 68: AIS Connect page - AIS Connect Management

Enable AIS Connect / Disable AIS Connect
: Enables / disables AIS Connect.

Enable Service Mode / Disable Service Mode
: Enables / disables the Service Mode.

Send Analysis Files Now
: Sends the AIS Connect analysis file to the Technical Support of Fujitsu Technology Solutions.

AIS Connect Configuration

The *AIS Connect Configuration* group allows you to configure your AIS Connect settings.

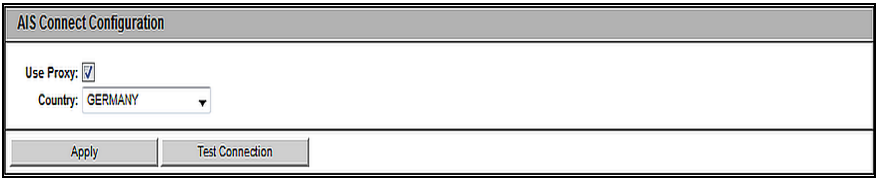


Figure 69: AIS Connect page - AIS Connect Configuration

Use Proxy

Here you can select whether an HTTP proxy server should be used. You can configure the proxy server settings in the *Network Settings* group on the *Proxy Settings* page (see section "Proxy Settings - Configuring proxy settings" on page 262).

Country

AIS Connect RP country.

Apply

Activate your settings.

Clicking *Apply* saves your settings to the persistent memory of the iRMC. Your settings are therefore available after a page refresh or after the iRMC web interface was closed and opened again or in case of a power loss.

Test Connection

Tests the connection to the Service System of Fujitsu Technology Solutions.

AIS Connect Remote Session

The *AIS Connect Remote Session* group allows you to do the following:

– Enabling or disabling the policy for the remote session.

– Disconnecting any remote session.

– Forcing the embedded AIS Connect agent to immediately poll. This is useful for getting a quick response when you are in *Warranty Mode.*

Figure 70: AIS Connect page - AIS Connect Configuration

Allow Remote Sessions / Deny Remote Sessions
: Allows / denies a remote session by enabling / disabling the policy for the remote session.

Disconnect Remote Sessions
: Disconnects a remote session if there is any.

Force Poll
: Forces the embedded AIS Connect agent to immediately poll.

7.4.4 System Report

The *System Report* page provides information on service incidents concerning server hardware/software directly out-of-band from the iRMC.

Information is provided on the following items:

- BIOS
- Processor
- Memory
- Temperature sensors
- Power supplies
- Voltage sensors
- IDPROMS
- PCI devices
- System Event Log
- Internal Event Log
- Boot status
- Management controllers

Alternatively, you can download and automatically evaluate the generated XML file by using a cURL or Visual Basic script (see section "Scripted download and automatic evaluation of the iRMC report" on page 467).

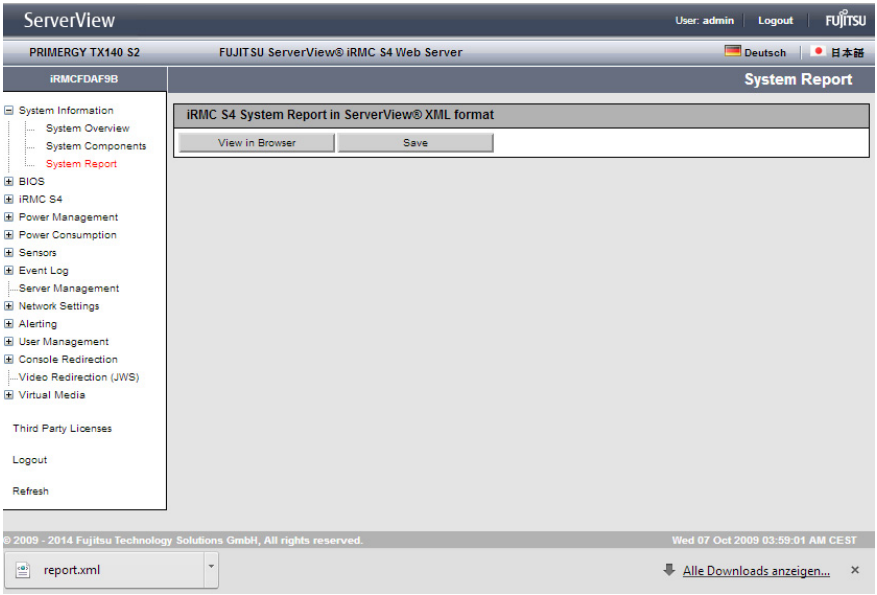


Figure 71: System Report page

View in Browser

Displays the XML file containing the report information.

Save

Stores a *report.xml* file containing the report information in the local download directory. For each report file stored, a button *report.xml* is displayed at the bottom of the *Sytem Report* page. You can open a report file by clicking the corresponding button.

Using the *PcSysScan.exe* from the ServerView Suite DVD 2, you can transform the generated XML file into a human readable HTML file as follows:

```
PcSysScan.exe –xmltransform report.xml report.html
```

7.4.5 CPU Utilization History

CPU Utilization provides data facilitating analysis of overall CPU usage for a selected time range. The collected data are displayed in a chart which includes maximum, minimum and average values of CPU load for single sample and for all samples in the full range of selected time scope.

CPU Utilization collects real data samples only when host system is on. When the host is off data is simulated (fake samples of value 0 are generated every 30 seconds).

CPU Utilization is only accessible for systems on which Node Manager supports CUPS functionality (NM_SENS_CORE_CPUS).

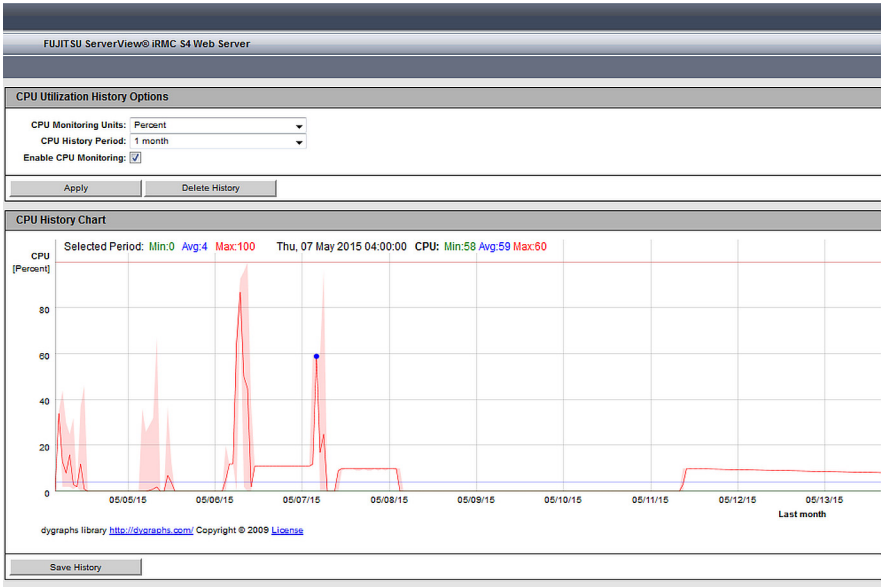


Figure 72: CPU Utilization History page

CPU Utilization History Options

In the *CPU Utilization History Options* group you can modify the settings for the chart display.

CPU Monitoring Units
Unit of the CPU usage

CPU History period

Time range between one hour and five years, that you can select. Samples for one hour, twelve hours and one day are temporary and are not stored. Samples for one week, two weeks, one month, one year and five years are stored in flash memory (file-based). Samples for one week, two weeks and one month are stored every hour. Samples for one year and five year periods are stored with one day resolution.

Enable CPU monitoring

Activates the monitoring in the defined time range.

Apply

Applies the selected options.

Delete History

Deletes the collected data.

CPU History Chart

Displays the data collected in a chart with the unit on the x-axis and the time range on the y-axis.

Save History

Opens a dialog to select the directory where to store the collected data.

7.4.6 Network Inventory

The *Network Inventory page* provides information on the Ethernet ports of the iRMC.

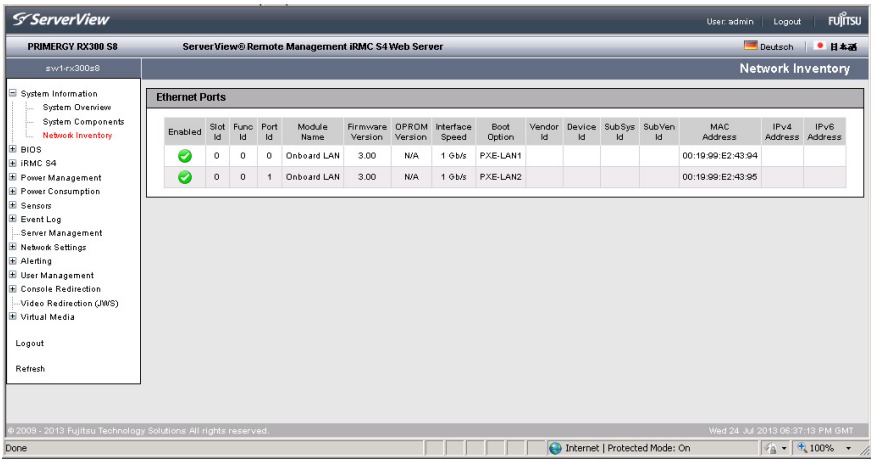

ServerView
User: admin | Logout
FUJITSU
PRIMERGY RX300 S8
ServerView® Remote Management iRMC S4 Web Server
Deutsch
svr1-rx300s8
Network Inventory
System Information
System Overview
System Components
Network Inventory
BIOS
iRMC S4
Power Management
Power Consumption
Sensors
Event Log
Server Management
Network Settings
Alerting
User Management
Console Redirection
Video Redirection (JWS)
Virtual Media
Logout
Refresh
Ethernet Ports
Enabled | Slot Id | Func Id | Port Id | Module Name | Firmware Version | OPROM Version | Interface Speed | Boot Option | Vendor Id | Device Id | SubSys Id | SubVen Id | MAC Address | IPv4 Address | IPv6 Address
0 | 0 | 0 | Onboard LAN | 3.00 | N/A | 1 Gb/s | PXE-LAN1 | 00:19:99:E2:43:94
0 | 0 | 1 | Onboard LAN | 3.00 | N/A | 1 Gb/s | PXE-LAN2 | 00:19:99:E2:43:95
© 2009 - 2013 Fujitsu Technology Solutions All rights reserved.
Wed 24 Jul 2013 06:37:13 PM GMT
Done
Internet | Protected Mode: On
100%

Figure 73: Network Inventory page

7.4.7 Driver Monitor

The *Driver Monitor* page provides status information on the drivers installed on your system.

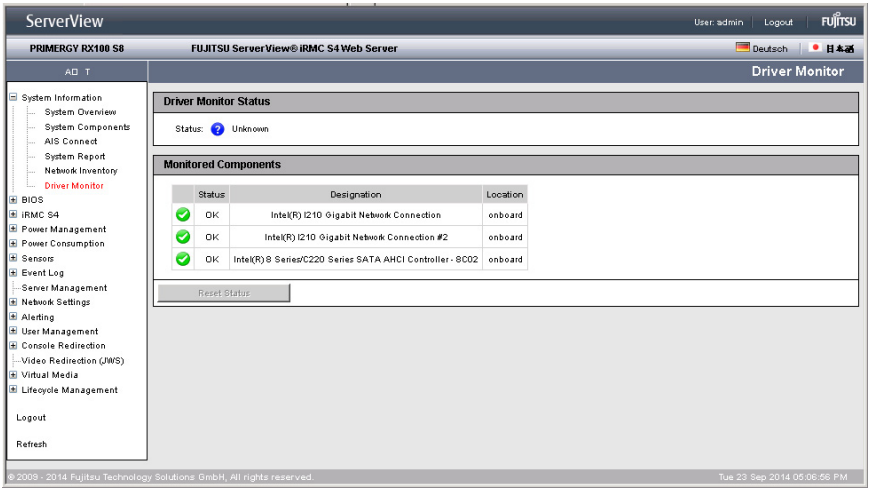


Figure 74: Driver Monitor page

Driver Monitor Status
Displays the driver monitoring summary status.

Monitored Components
Displays the monitored driver components.

Reset
Resets of the status of all driver components.

7.5 RAID Information - Information on the RAID systems

The *RAID Information* entry and the related pages are only displayed if the following requirements are met:

- Out of-band enabled RAID Controllers are available on the managed server
- The server is powered on, and the system is currently not in the BIOS POST phase.

The *RAID Information* entry contains the links to the following pages:

- "RAID Controller - Information on RAID controllers and associated batteries" on page 154
- "Physical Disks - Information on RAID physical disks" on page 160
- "Physical Disks - Information on RAID physical disks" on page 160
- "Logical Drives - Information on RAID logical drives" on page 162

These pages, which are described in detail below, only display information on RAID systems. For managing RAID systems, ServerView RAID is still needed.

7.5.1 RAID Controller - Information on RAID controllers and associated batteries

For each RAID controller on the managed server, the *RAID Controller* page provides information on the RAID controller and the status of the associated battery.

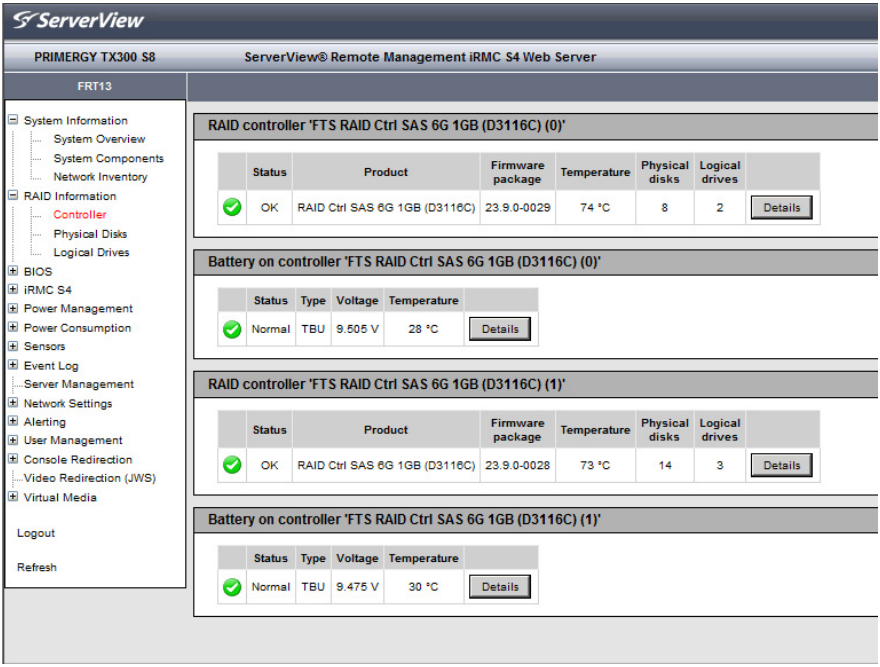


Figure 75: RAID Information - Controllers page

Details

Clicking on *Details* opens a new page which provides detailed information on the RAID controller / Battery.

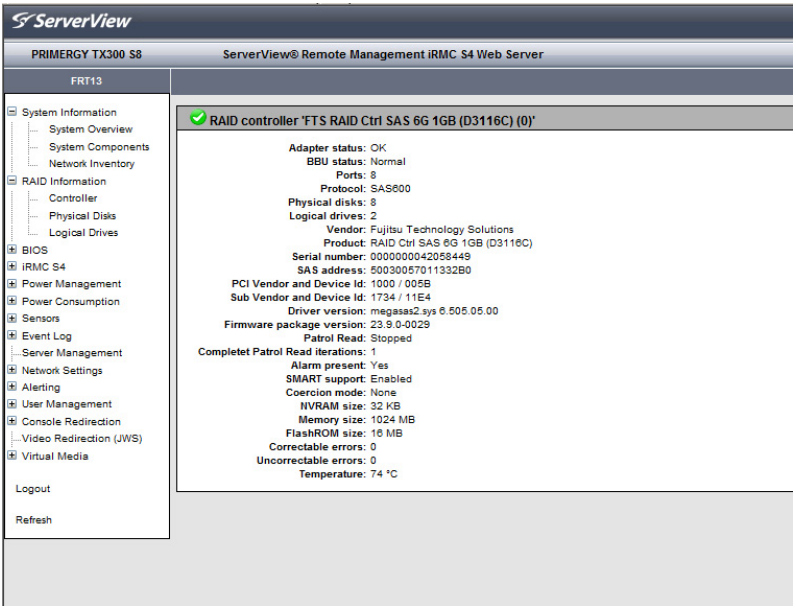


Figure 76: RAID controller details

7.5.2 Enclosures - Information on RAID enclosures

The *RAID enclosures information* page provides information on each RAID enclosure on the managed server.

RAID enclosure: ETERNUS JX40

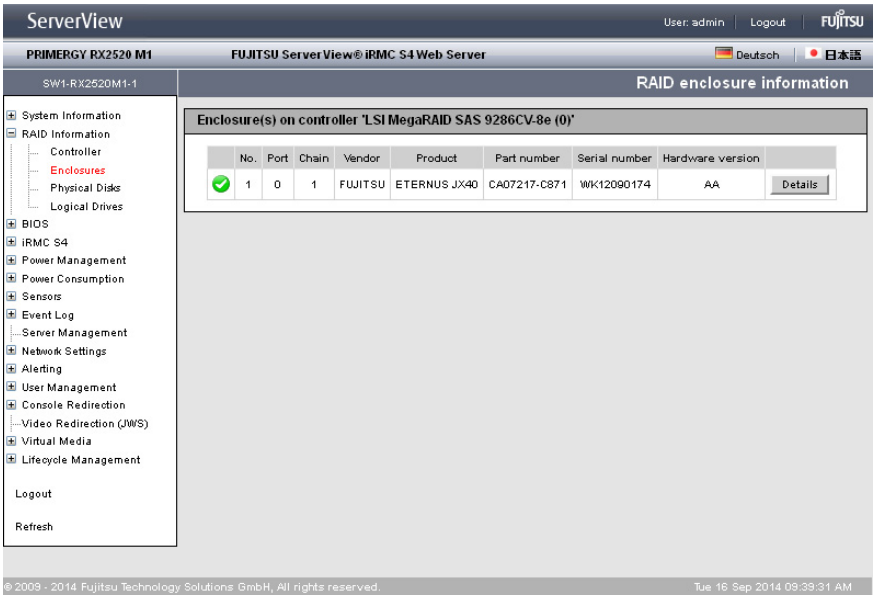
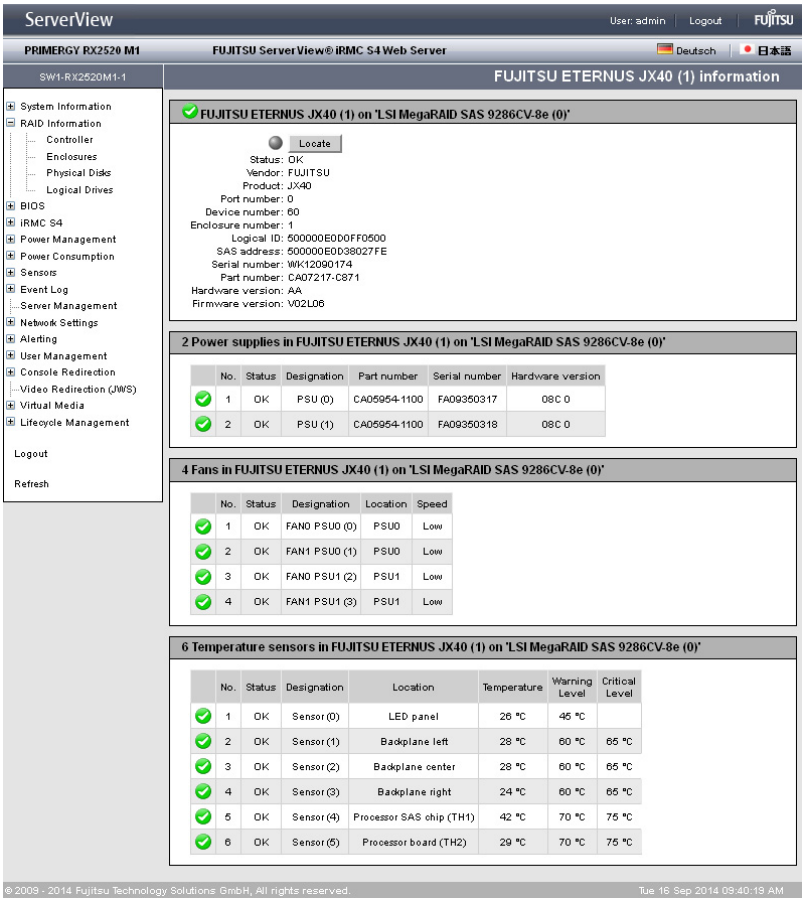


Figure 77: RAID Information - RAID enclosures page (ETERNUS JX40)

Details

Clicking on *Details* opens a new page which provides detailed information on the corresponding RAID enclosure.


ServerView
User: admin
Logout
FUJITSU
PRIMERGY RX2520 M1
FUJITSU ServerView® iRMC S4 Web Server
Deutsch
日本語
SW1-RX2520M1-1
FUJITSU ETERNUS JX40 (1) information
System Information
RAID Information
Controller
Enclosures
Physical Disks
Logical Drives
BIOS
iRMC S4
Power Management
Power Consumption
Sensors
Event Log
Server Management
Network Settings
Alerting
User Management
Console Redirection
Video Redirection (JWS)
Virtual Media
Lifecycle Management
Logout
Refresh
FUJITSU ETERNUS JX40 (1) on 'LSI MegaRAID SAS 9286CV-8e (0)'
Locate
Status: OK
Vendor: FUJITSU
Product: JX40
Port number: 0
Device number: 60
Enclosure number: 1
Logical ID: 500000E0D0FF0500
SAS address: 500000E0D38027FE
Serial number: WK12090174
Part number: CA07217-C871
Hardware version: AA
Firmware version: V02L06
2 Power supplies in FUJITSU ETERNUS JX40 (1) on 'LSI MegaRAID SAS 9286CV-8e (0)'
No. Status Designation Part number Serial number Hardware version
1 OK PSU (0) CA05954-1100 FA09350317 08C 0
2 OK PSU (1) CA05954-1100 FA09350318 08C 0
4 Fans in FUJITSU ETERNUS JX40 (1) on 'LSI MegaRAID SAS 9286CV-8e (0)'
No. Status Designation Location Speed
1 OK FAN0 PSU0 (0) PSU0 Low
2 OK FAN1 PSU0 (1) PSU0 Low
3 OK FAN0 PSU1 (2) PSU1 Low
4 OK FAN1 PSU1 (3) PSU1 Low
6 Temperature sensors in FUJITSU ETERNUS JX40 (1) on 'LSI MegaRAID SAS 9286CV-8e (0)'
No. Status Designation Location Temperature Warning Level Critical Level
1 OK Sensor (0) LED panel 26 °C 45 °C
2 OK Sensor (1) Backplane left 28 °C 60 °C 65 °C
3 OK Sensor (2) Backplane center 28 °C 60 °C 65 °C
4 OK Sensor (3) Backplane right 24 °C 60 °C 65 °C
5 OK Sensor (4) Processor SAS chip (TH1) 42 °C 70 °C 75 °C
6 OK Sensor (5) Processor board (TH2) 29 °C 70 °C 75 °C
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Tue 16 Sep 2014 09:40:19 AM

Figure 78: RAID enclosures details (ETERNUS JX40information)

Locate

Turns on the identify LED of the RAID enclosure.

RAID enclosure: ETERNUS JX60

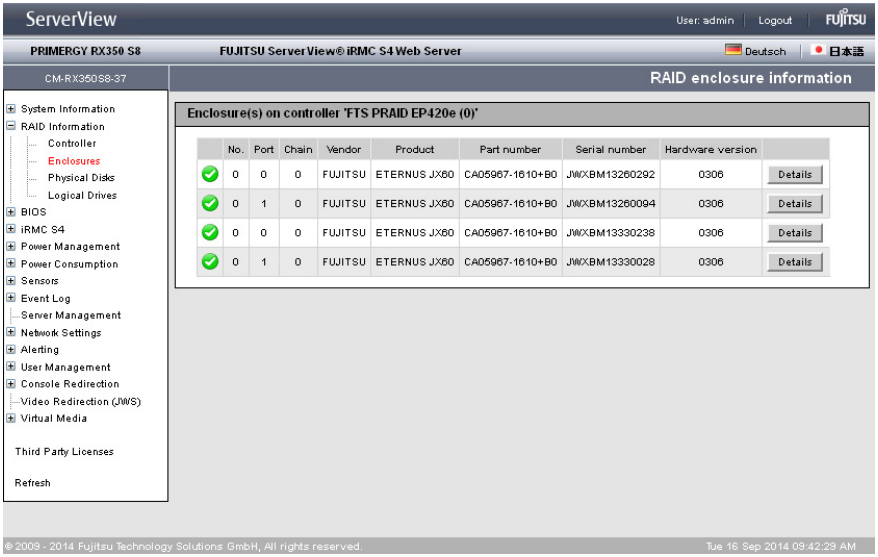
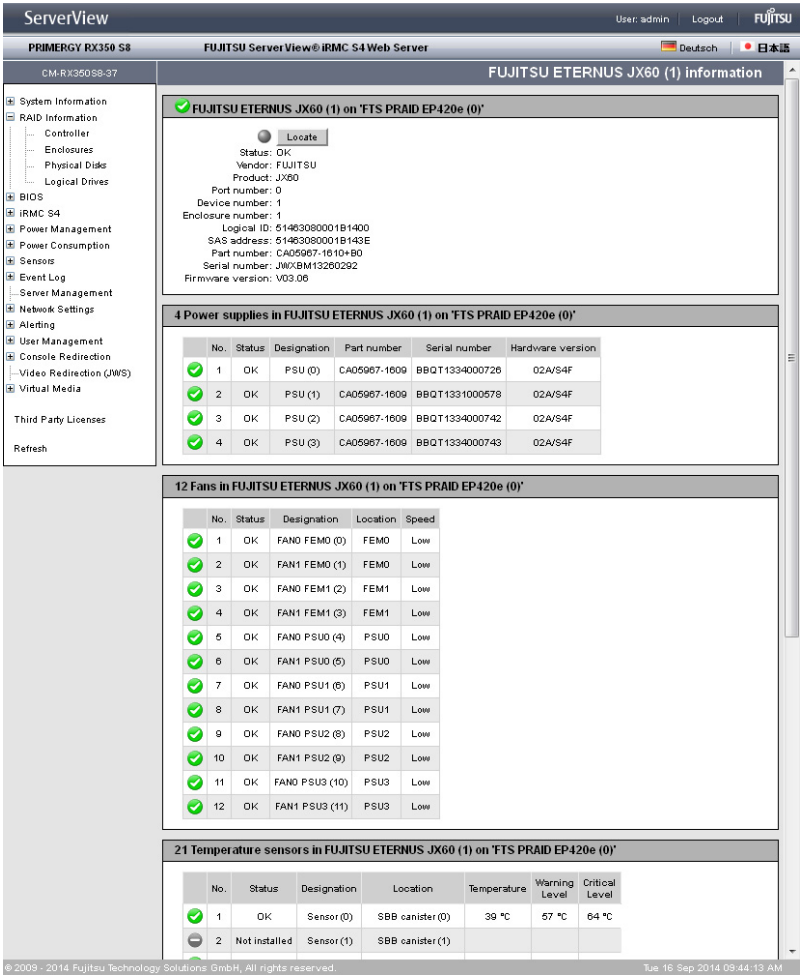


Figure 79: RAID Information - RAID enclosures page (ETERNUS JX60)

Details

Clicking on *Details* opens a new page which provides detailed information on the corresponding RAID enclosure.


ServerView
User: admin
Logout
FUJITSU
PRIMERGY RX350 S8
FUJITSU ServerView® iRMC S4 Web Server
Deutsch
日本語
CM-RX350S8-37
FUJITSU ETERNUS JX60 (1) information
System Information
RAID Information
Controller
Enclosures
Physical Disks
Logical Drives
BIOS
iRMC S4
Power Management
Power Consumption
Sensors
Event Log
Server Management
Network Settings
Alerting
User Management
Console Redirection
Video Redirection (JWS)
Virtual Media
Third Party Licenses
Refresh
FUJITSU ETERNUS JX60 (1) on 'FTS PRAID EP420e (0)'
Locate
Status: OK
Vendor: FUJITSU
Product: JX60
Port number: 0
Device number: 1
Enclosure number: 1
Logical ID: 51463080001B1400
SAS address: 51463080001B143E
Part number: CA05967-1610+B0
Serial number: JWXBM13260292
Firmware version: V03.06
4 Power supplies in FUJITSU ETERNUS JX60 (1) on 'FTS PRAID EP420e (0)'
No. Status Designation Part number Serial number Hardware version
1 OK PSU (0) CA05967-1609 BBQT1334000726 02A/S4F
2 OK PSU (1) CA05967-1609 BBQT1331000578 02A/S4F
3 OK PSU (2) CA05967-1609 BBQT1334000742 02A/S4F
4 OK PSU (3) CA05967-1609 BBQT1334000743 02A/S4F
12 Fans in FUJITSU ETERNUS JX60 (1) on 'FTS PRAID EP420e (0)'
No. Status Designation Location Speed
1 OK FAN0 FEM0 (0) FEM0 Low
2 OK FAN1 FEM0 (1) FEM0 Low
3 OK FAN0 FEM1 (2) FEM1 Low
4 OK FAN1 FEM1 (3) FEM1 Low
5 OK FAN0 PSU0 (4) PSU0 Low
6 OK FAN1 PSU0 (5) PSU0 Low
7 OK FAN0 PSU1 (6) PSU1 Low
8 OK FAN1 PSU1 (7) PSU1 Low
9 OK FAN0 PSU2 (8) PSU2 Low
10 OK FAN1 PSU2 (9) PSU2 Low
11 OK FAN0 PSU3 (10) PSU3 Low
12 OK FAN1 PSU3 (11) PSU3 Low
21 Temperature sensors in FUJITSU ETERNUS JX60 (1) on 'FTS PRAID EP420e (0)'
No. Status Designation Location Temperature Warning Level Critical Level
1 OK Sensor (0) SBB canister (0) 39 °C 57 °C 64 °C
2 Not installed Sensor (1) SBB canister (1)
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Tue 16 Sep 2014 09:44:13 AM

Figure 80: RAID enclosures details (ETERNUS JX60information)

Locate

Turns on the identify LED of the RAID enclosure.

7.5.3 Physical Disks - Information on RAID physical disks

The *Physical Disks* page provides information on each RAID physical disk on the managed server.

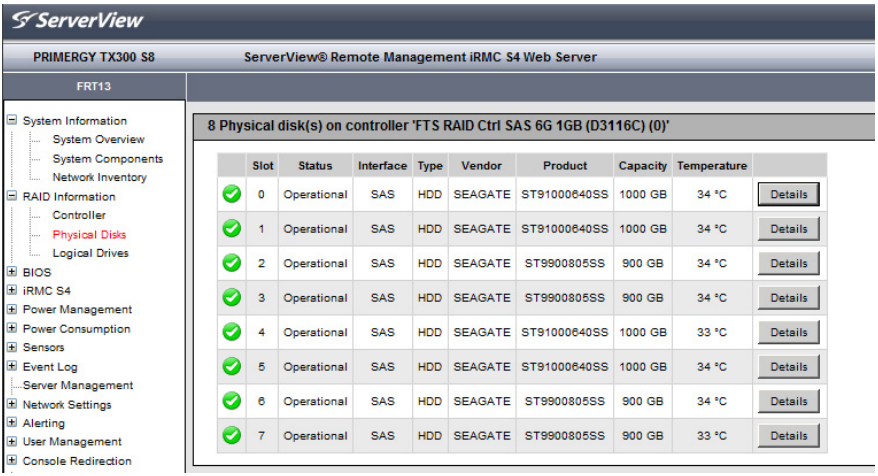

ServerView
PRIMERGY TX300 S8
ServerView® Remote Management iRMC S4 Web Server
FRT13
System Information
System Overview
System Components
Network Inventory
RAID Information
Controller
Physical Disks
Logical Drives
BIOS
iRMC S4
Power Management
Power Consumption
Sensors
Event Log
Server Management
Network Settings
Alerting
User Management
Console Redirection
8 Physical disk(s) on controller 'FTS RAID Ctrl SAS 6G 1GB (D3116C) (0)'
Slot Status Interface Type Vendor Product Capacity Temperature
0 Operational SAS HDD SEAGATE ST91000640SS 1000 GB 34 °C Details
1 Operational SAS HDD SEAGATE ST91000640SS 1000 GB 34 °C Details
2 Operational SAS HDD SEAGATE ST9900805SS 900 GB 34 °C Details
3 Operational SAS HDD SEAGATE ST9900805SS 900 GB 34 °C Details
4 Operational SAS HDD SEAGATE ST91000640SS 1000 GB 33 °C Details
5 Operational SAS HDD SEAGATE ST91000640SS 1000 GB 34 °C Details
6 Operational SAS HDD SEAGATE ST9900805SS 900 GB 34 °C Details
7 Operational SAS HDD SEAGATE ST9900805SS 900 GB 33 °C Details

Figure 81: RAID Information - Physical Disks page

Details

Clicking on *Details* opens a new page which provides detailed information on the corresponding RAID physical disk.

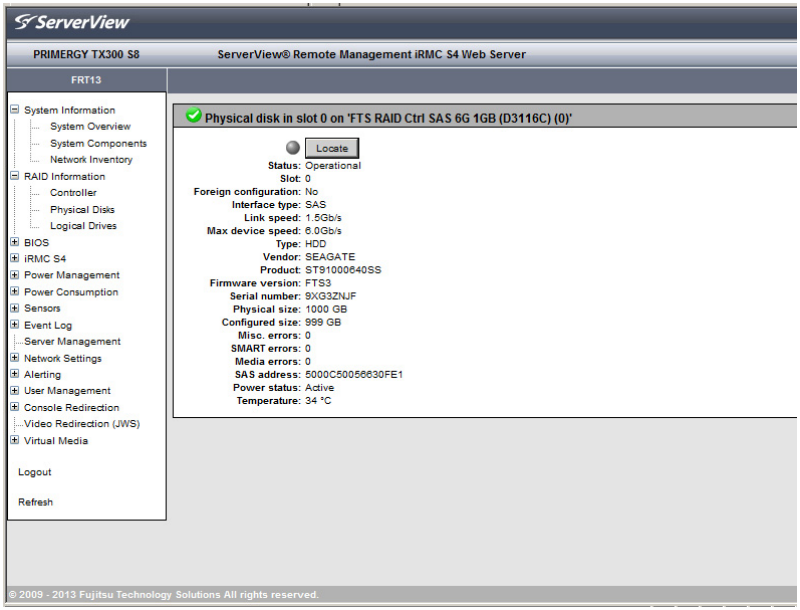


Figure 82: RAID physical disks details

Locate

Turns on the identify LED of the RAID physical disk.

7.5.4 Logical Drives - Information on RAID logical drives

The *Logical Drives* page provides information on the each RAID logical drives on the managed server.

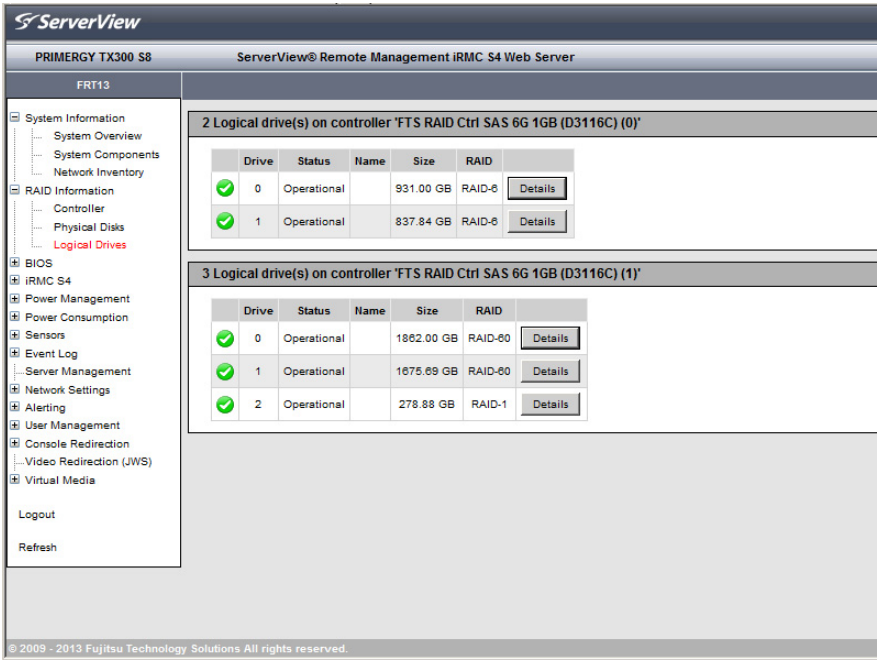


Figure 83: RAID Information - Logical Drives page

Details

Clicking on *Details* opens a new page which provides detailed information on the corresponding RAID logical drive.

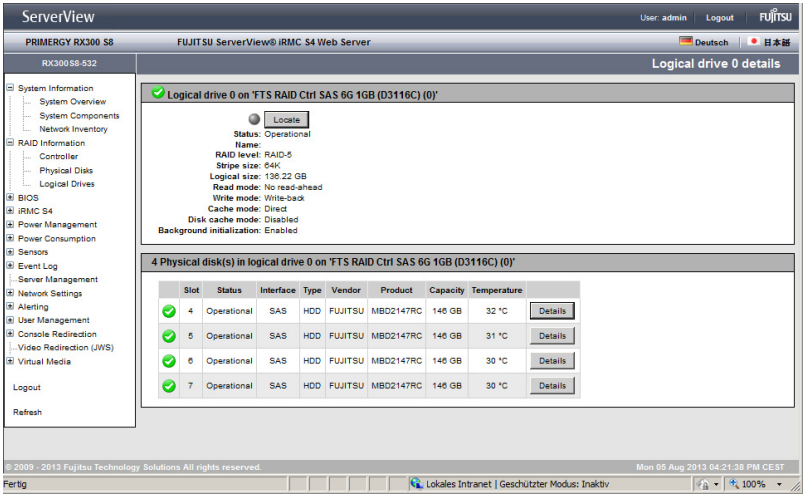


Figure 84: Logical Drives Details

Locate

Turns on the identify LED of the RAID physical disk on which the logical drive resides.

7.6 BIOS - Backing up/restore BIOS settings, flashing BIOS

The *BIOS* entry contains the links to the following pages:

– "Backup/Restoration - Saving/Restoring BIOS single parameter settings to/from a file" on page 164

– "BIOS - Updating BIOS via "upload from file" or via TFTP" on page 168

These pages are only displayed if the BIOS of the managed server supports the corresponding feature requirements.

7.6.1 Backup/Restoration - Saving/Restoring BIOS single parameter settings to/from a file

The *Backup/Restoration of BIOS Single Parameter Settings* page provides you with the following options:

– Back up single BIOS parameters in ServerView® WinSCU XML format and save the backup to a file.

– Restore single BIOS parameter settings in ServerView® WinSCU XML format from a file.

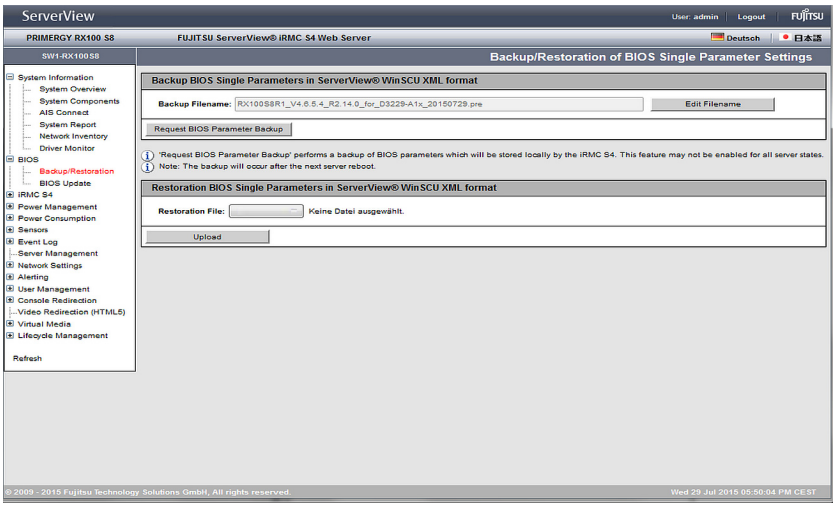


Figure 85: Backup/Restoration of BIOS Single Parameter Settings page

7.6.1.1 Backup BIOS Single Parameters in ServerView® WinSCU XML format

The *Backup BIOS Single Parameters in ServerView® WinSCU XML format* group allows you to back up single BIOS parameter settings in ServerView® WinSCU XML format and to save the backup to a file.

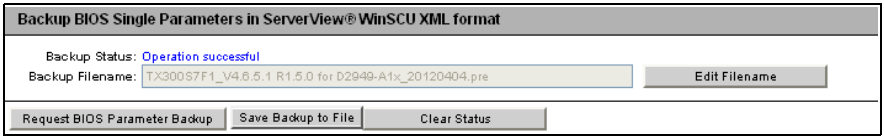

Backup BIOS Single Parameters in ServerView® WinSCU XML format
Backup Status: Operation successful
Backup Filename: TX300S7F1_V4.6.5.1 R1.5.0 for D2949-A1x_20120404.pre
Edit Filename
Request BIOS Parameter Backup
Save Backup to File
Clear Status

Figure 86: Backup BIOS Single Parameters in ServerView® WinSCU XML format

Backup Status

Only displayed if a backup is currently in process or has been completed: Displays the status of the current backup process. Successful completion is indicated by "Operation Successful".

You can clear the status display by clicking the *Clear Status* button, which is only available if a status is currently displayed.

Backup Filename

This input field is disabled ("grayed out") by default. Initially, it displays the file name that is dynamically generated by the iRMC.

Edit Filename

Enables the *Backup Filename* field, thus allowing you to enter a file name (*.pre*) of your choice.

Save Filename

Saves the edited file name, which, starting from now, will be the name displayed by default in the *Backup Filename* field.

Request BIOS Parameter Backup

Initiates a backup of single BIOS parameter settings in ServerView® WinSCU XML format. The backup (with the name specified in the *Backup Filename* field) is stored locally on the iRMC .

Once the backup process has started, the current process status is displayed under *Backup Status*.

Notes on the backup process:

- During the backup process, all buttons and input fields are disabled.
- If powered off, the managed server will be automatically powered on.
- If the server is powered on, a reboot is required. Otherwise, the backup process will remain in state "Boot Pending".
- The managed server is powered off after the backup has completed.

Save Backup to File

Only displayed when a backup of single BIOS parameters in ServerView® WinSCU XML format is available in the local store of the iRMC:

Opens a browser dialog allowing you to save the iRMC -local copy of the BIOS backup data to a file (<*name -of-your-choice*>.*pre*).

Clear Status

Only available if a status is currently displayed under *Backup Status*: Clears the status information indicated under *Backup Status*.

7.6.1.2 Restoration BIOS Single Parameters in ServerView® WinSCU XML format

The *Restoration BIOS Single Parameters in ServerView® WinSCU XML format* group allows you to restore single BIOS parameter settings from a restoration file in ServerView® WinSCU XML format.

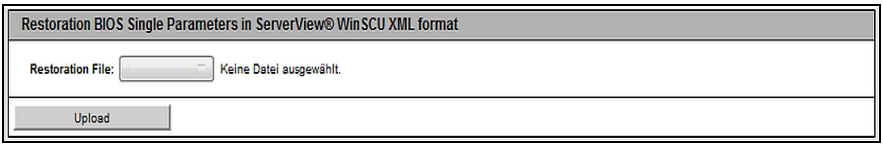


Figure 87: Restoration BIOS Single Parameters in ServerView® WinSCU XML format

Restoration Status

The *Restoration Status* is only displayed if a restoration is currently in process or has been completed: Displays the status of the current restoration process. Successful completion is indicated by "Operation successful".

You can clear the status display by clicking the *Clear Status* button, which is only available if a status is currently displayed.

Restoration File

Clicking *Browse* opens a browser dialog allowing you to navigate to a file (*.pre*) containing a backup of single BIOS parameters in the ServerView® WinSCU XML format.

Upload

Initiates the restoration of single BIOS parameter settings based on the file specified in the *Restoration File* field.

Once the restoration process has started, the current process status is indicated under *Restoration Status*.

Notes on the restoration process:

- During the restoration process, all buttons and input fields are disabled.
- If powered off, the managed server will automatically be powered on.
- If the managed server is powered on, the server is to be rebooted. Otherwise the restoration process will remain in state "Boot Pending".
- The managed server is powered off after the restoration has completed.

Clear Status

Only available if a status is currently indicated under *Restoration Status*: Clears the status information indicated under *Restoration Status*.

7.6.2 BIOS - Updating BIOS via "upload from file" or via TFTP

The *BIOS Update Settings* page provides information on the current BIOS version on the managed server and allows you to update the BIOS via "upload from file" or via TFTP.

You will find the appropriate BIOS image for your PRIMERGY server on ServerView Suite DVD 2 or you can download it under *http://support.ts.fujitsu.com/com/support/downloads.html*.

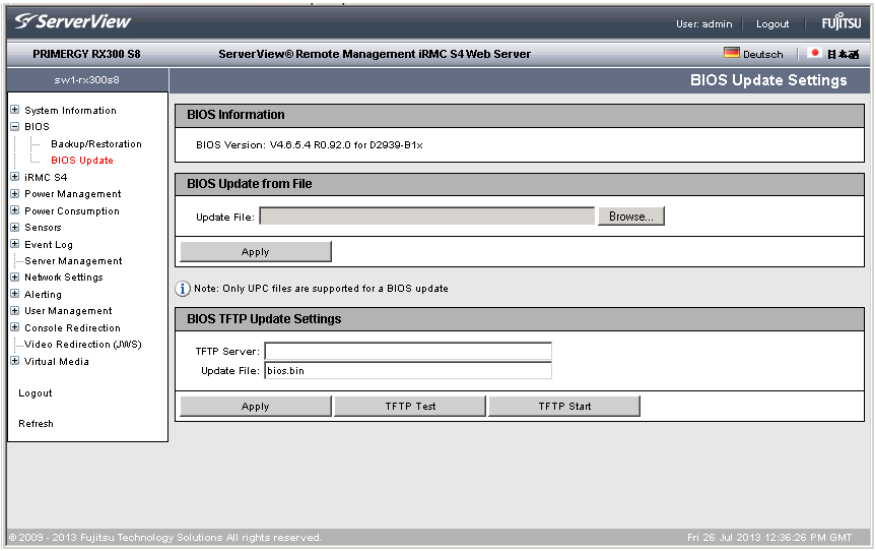


Figure 88: BIOS Update Settings page

Updating (flashing) the BIOS - course of events and important notes

The following overview applies for both updating the BIOS via "upload from file" and updating the BIOS via TFTP.

Details on how to initiate the steps described in this overview are described below in this section.

During the complete update process, the current update status is indicated in the *BIOS Update Settings* page.

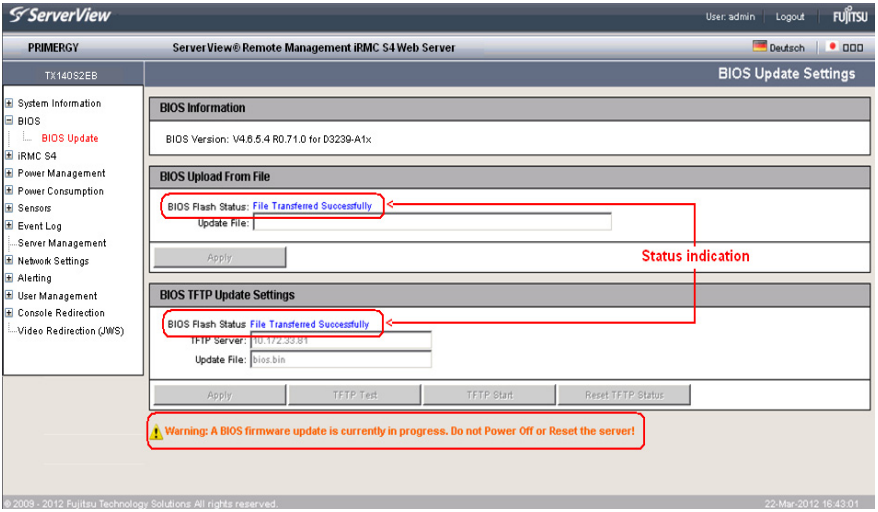


Figure 89: Updating BIOS - (TFTP) download successfully finished

Updating the BIOS comprises the following steps:

1. In the first step, you download the update file.

   After the update file has been downloaded, the following occurs:

   – If the server is powered off, the server will be automatically powered on to initiate the flash process.

   – If the server is already powered on, you must restart the server to initiate the flash process.

   CAUTION!

   If a BIOS update is currently in progress, do **not** power-off or restart the server.

2. Subsequently, flash data is transferred to memory. The status display will indicate when the transfer has successfully completed.

3. Before the actual flashing process is started, the flash/update image is checked.

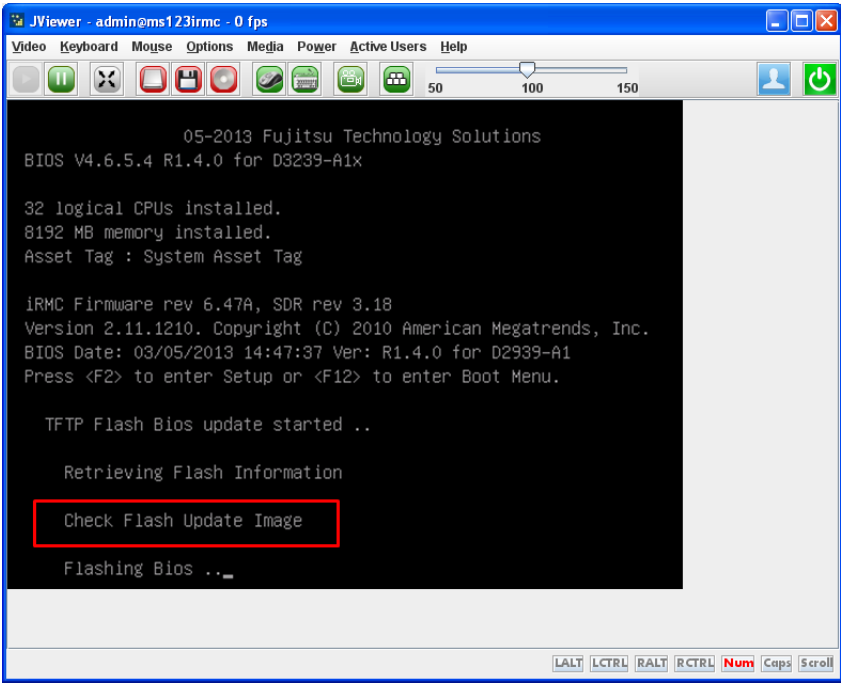

JViewer - admin@ms123irmc - 0 fps
Video Keyboard Mouse Options Media Power Active Users Help
50 100 150
05-2013 Fujitsu Technology Solutions
BIOS V4.6.5.4 R1.4.0 for D3239-A1x
32 logical CPUs installed.
8192 MB memory installed.
Asset Tag : System Asset Tag
iRMC Firmware rev 6.47A, SDR rev 3.18
Version 2.11.1210. Copyright (C) 2010 American Megatrends, Inc.
BIOS Date: 03/05/2013 14:47:37 Ver: R1.4.0 for D2939-A1
Press <F2> to enter Setup or <F12> to enter Boot Menu.
TFTP Flash Bios update started ..
Retrieving Flash Information
Check Flash Update Image
Flashing Bios ..
LALT LCTRL RALT RCTRL Num Caps Scroll

Figure 90: Updating BIOS - checking update/flash image

4. Once the update/flash image is successfully verified, the actual flashing process is started. The status indication shows the percentage completion of the flash process.
5. After the BIOS update has successfully completed, the server is powered off. The following entry is written to the system event log (SEL):

   `BIOS TFTP or HTTP/HTTPS flash OK`

BIOS Information

This group provides information on the current BIOS version on the managed server.

BIOS Upload from File

The *BIOS Upload from File* group allows you to perform an online update of the BIOS on the managed server. To do this, you must provide the current BIOS image in a file.

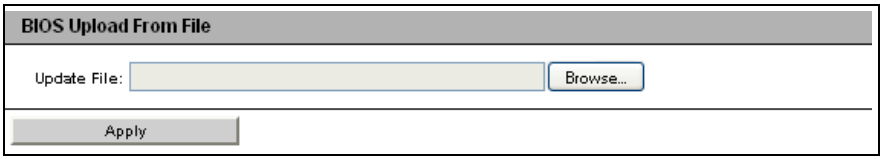


Figure 91: BIOS Update Settings page - BIOS Update from File

Update File
File in which the BIOS image is stored.

Browse
Opens a file browser that allows you to navigate to the update file.

Apply
Activates your settings and to start flashing the BIOS.

CAUTION!

If a BIOS update is currently in progress, do **not** power-off or restart the server.

BIOS TFTP Update Settings

The *BIOS TFTP Update Settings* group allows you to perform an online update of the BIOS on the managed server. To do this, you must provide the current BIOS image in a file on a TFTP server. The BIOS is flashed when TFTP is started.

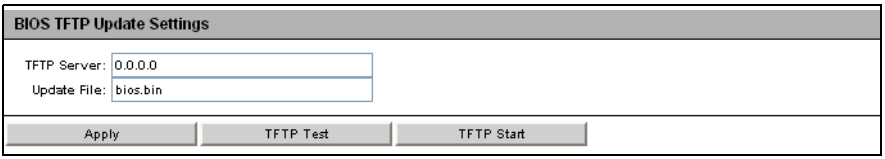


Figure 92: BIOS Update Settings page - BIOS TFTP Update Settings

TFTP Server

IP address or DNS name of the TFTP server on which the file with the BIOS image is stored.

Update File

File in which the BIOS image is stored.

Apply

Activates your settings.

TFTP Test

Tests the connection to the TFTP server.

TFTP Start

Downloads the file containing the BIOS image from the TFTP server and to start flashing the BIOS.

CAUTION!

If a BIOS update is currently in progress, do **not** power-off or restart the server.

7.7 iRMC S4 - Information, firmware and certificates

The *iRMC S4* entry contains the links to the following pages:

- "iRMC S4 Information - Information on the iRMC" on page 174
- "iRMC S4 Time - Time options for the iRMC S4" on page 178
- "Save Configuration - Save iRMC S4 Firmware Settings" on page 181
- "Certificate Upload - Load the DSA/RSA Certificate and private DSA/RSA Key" on page 183.
- "Generate a self-signed Certificate - Generate self-signed RSA Certificate" on page 190
- "iRMC S4 Firmware Update" on page 192

7.7.1 iRMC S4 Information - Information on the iRMC

The *iRMC S4 Information* page provides you with the following options:

– View information on the firmware and the SDRR version of the iRMC, set the firmware selector and load a firmware image and restart the iRMC.

– View information on the active iRMC sessions.

– Load license key onto the iRMC.

– Make settings for the layout of the web interface.

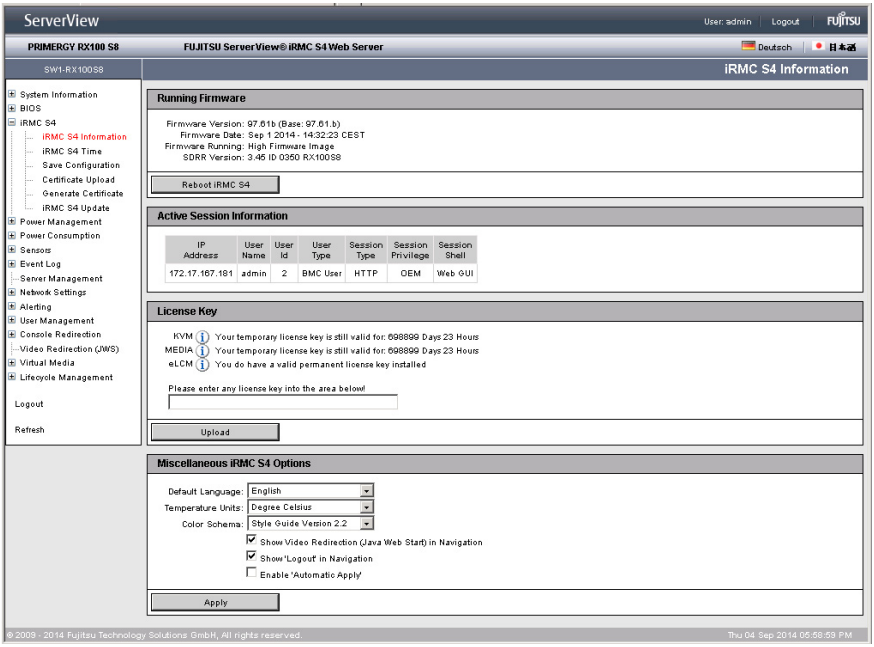


Figure 93: iRMC S4 Information page

Running Firmware

Under *Running Firmware*, you can view information on the firmware and the SDRR version of the iRMC and restart the iRMC.

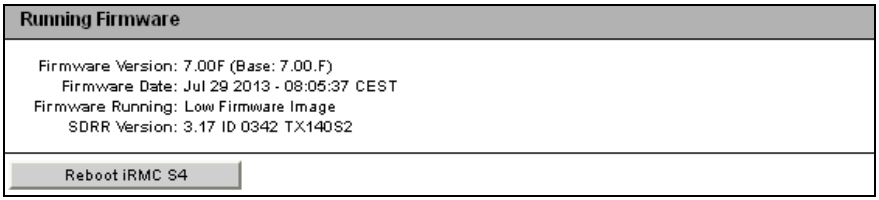

Running Firmware
Firmware Version: 7.00F (Base: 7.00.F)
Firmware Date: Jul 29 2013 - 08:05:37 CEST
Firmware Running: Low Firmware Image
SDRR Version: 3.17 ID 0342 TX140S2
Reboot iRMC S4

Figure 94: iRMC S4 Information page - Firmware Information and iRMC reboot

Reboot iRMC S4

Reboots the iRMC.

The *Reboot iRMC S4* button is disabled during the BIOS POST phase of the managed server.

Active Session Information

The *Active Session Information* group shows all the currently active iRMC sessions.

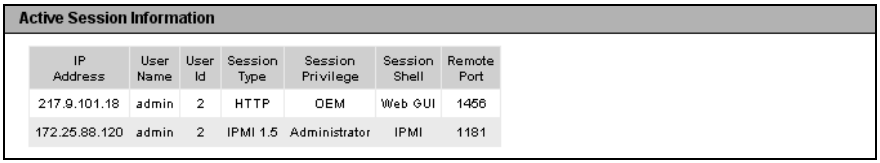


Figure 95: iRMC S4 Information page - Active Session Information

License Key

The *License Key* group allows you to load a license key onto the iRMC.

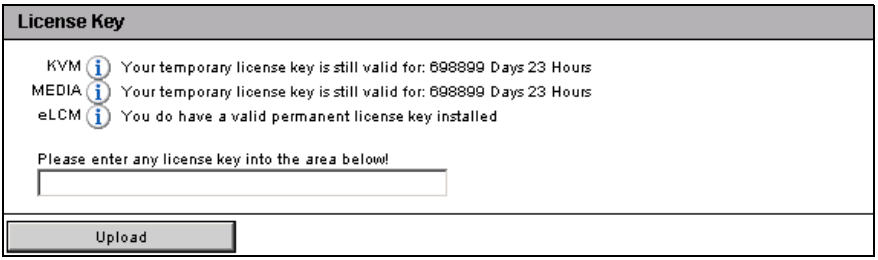

License Key
KVM
Your temporary license key is still valid for: 698899 Days 23 Hours
MEDIA
Your temporary license key is still valid for: 698899 Days 23 Hours
eLCM
You do have a valid permanent license key installed
Please enter any license key into the area below!
Upload

Figure 96: iRMC S4 Information page - License Key

You require a valid license key to be able to use the iRMC functions *Advanced Video Redirection* (see page 324), *Virtual Media* (see page 332), and *Lifecycle Management* (see page 339). The license key for Lifecycle Management is always purchased together with the iRMC SD card.

You can purchase the license key. The license key for Lifecycle Management is always purchased together with the iRMC SD card

Upload

When you click this button, the license key specified in the input field is loaded onto the iRMC.

Miscellaneous iRMC S4 Options

The *Miscellaneous iRMC S4 Options* group allows you to make settings for the layout of the iRMC web interface.

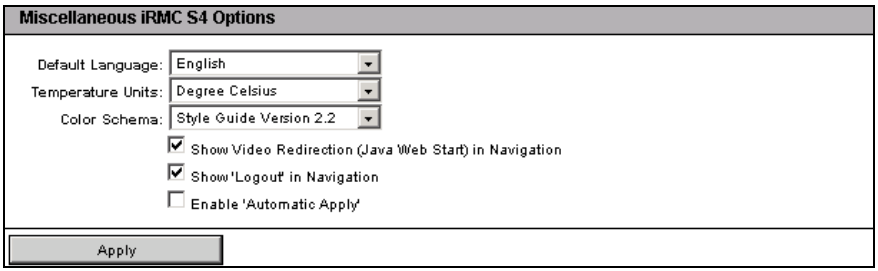


Figure 97: iRMC Information page - Miscellaneous Options

Default Language

Specifies the language (German / English / Japanese) that is set as default the next time the iRMC web interface is called.

Temperature Units

Specifies the unit used for displaying temperature values at the iRMC web interface (degrees Celsius / degrees Fahrenheit). This setting applies for the current session and is preset the next time the iRMC web interface is called.

Color Schema

Specifies the color scheme for displaying the iRMC web interface. This setting applies for the current session and is preset the next time the iRMC web interface is called.

Show Video Redirection (Java Web Start) in Navigation

Adds the *Video Redirction (JWS)* link to the navigation area. This allows you to directly start video redirection (Java Web Start) (see "Video Redirection - Starting AVR using Java" on page 329).

Show 'Logout' in Navigation

This option is only available if the iRMC information page is displayed in the *StyleguideVersion 2.2* color scheme.

Adds the *Logout* link to the navigation area. This allows you to logout via the navigation area.

Enable 'Automatic Apply'

All settings are enabled at the moment they are set. The *Apply* buttons within the individual pages of the iRMC are hidden until the *Enable Automatic Apply* option is deselected again.

Apply

Applies the selected option.

7.7.2 iRMC S4 Time - Time options for the iRMC S4

The *iRMC S4 Time* page allows you to configure the time settings for the iRMC .

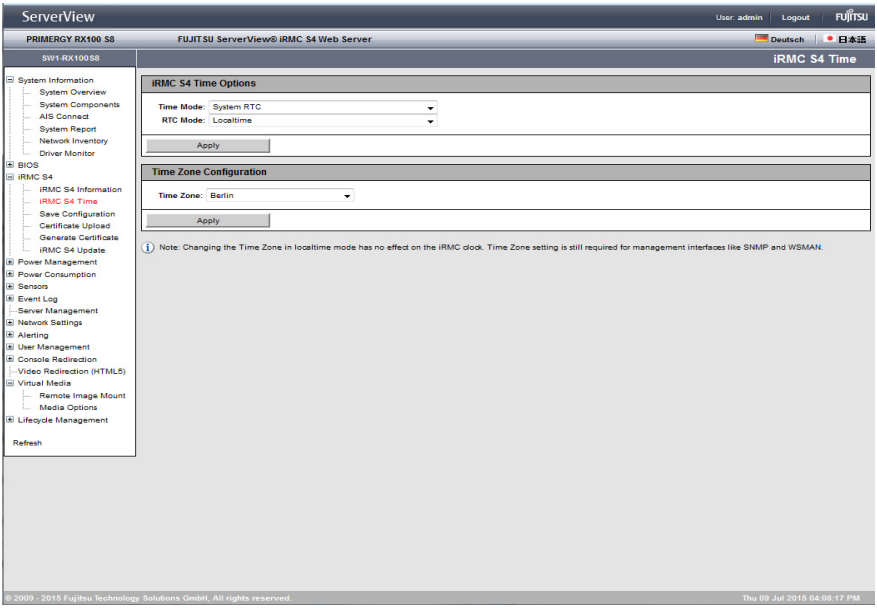


Figure 98: iRMC S4 Time page

iRMC S4 Time Options

The *iRMC S4 Time Options* group allows you to configure the time settings for the iRMC.

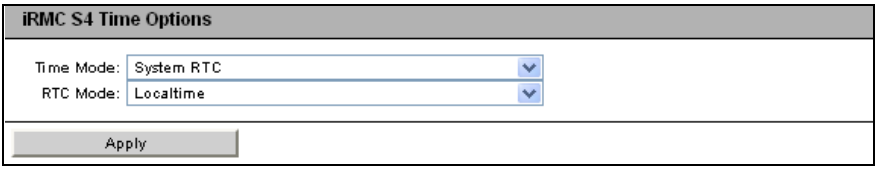


Figure 99: iRMC S4 Time page - iRMC Time Options

Time Mode

Here you can select whether the iRMC gets its time settings form the managed server or from an NTP server.

System RTC

The iRMC gets its time from the system clock of the managed server.

NTP Server

The iRMC uses the Network Time Protocol (NTP) to synchronize its own time to an NTP server, which serves as reference time source.

If you enable this option, an additional group, the *NTP (Network Time Protocol) Configuration* group, is shown allowing you to configure the required NTP settings (see below).

RTC Mode

Here you can select whether, starting from now, iRMC time will be shown in UTC (Universal Time Coordinated) format or in Local Time format.

UTC (Universal Time Coordinated)

iRMC time will be shown in UTC (Universal Time Coordinated) format.

Localtime

iRMC time will be shown in Local Time format.

Time Zone Configuration

In this group you can configure the time zone corresponding to the location where the PRIMERGY server is located.

Time Zone
List of time zones

Apply
Applies the selected settings.

NTP (Network Time Protocol) Configuration

The *NTP (Network Time Protocol) Configuration* group allows you to configure the required NTP settings if the *NTP Server* option has been enabled in the *iRMC S4 Time Options* group.

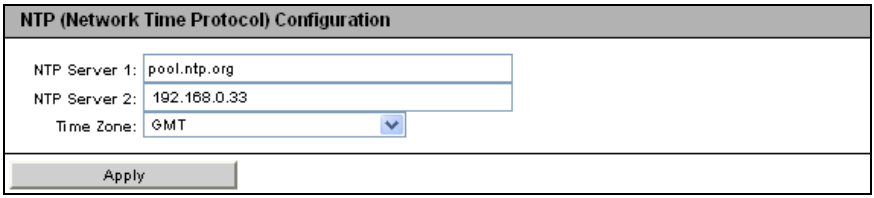


Figure 100: iRMC S4 Time page - NTP Configuration

NTP Server 1
IP address or DNS name of the primary NTP server.

NTP Server 2
IP address or DNS name of the secondary NTP server.

Time Zone
Configure the *Time Zone* corresponding to the location where the PRIMERGY server is located.

Apply
Activates the settings of this group.

7.7.3 Save Configuration - Save iRMC S4 Firmware Settings

The *Save iRMC S4 Firmware Settings* page allows you to save the current firmware settings and a number of other settings for the iRMC in a file. Additionally, you can load the firmware settings onto the iRMC again.

If you want to save the user settings *(Include User Settings)*, you require *Configure User Accounts* permission. In all other cases, *Configure iRMC S4 settings* permission is sufficient.

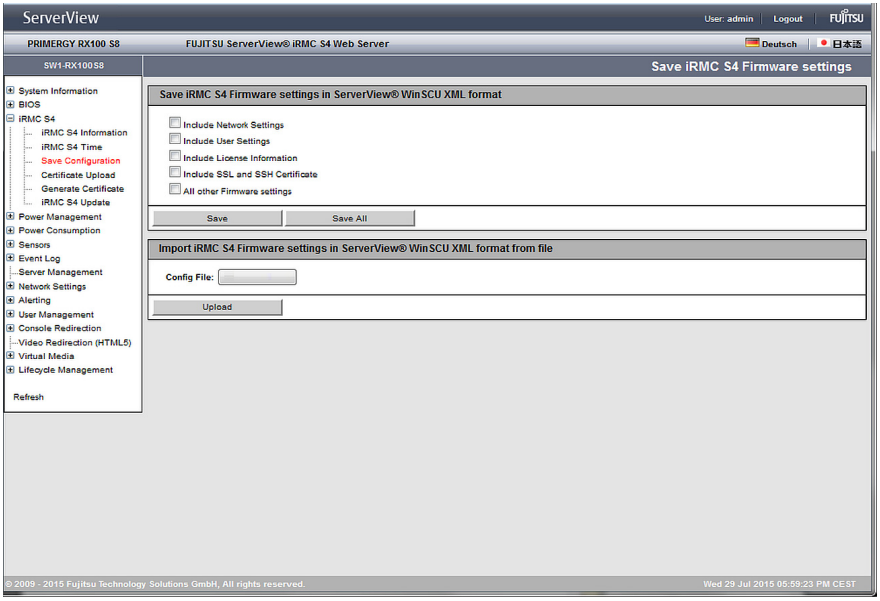


Figure 101: Save iRMC S4 Firmware Settings page

Save iRMC S4 firmware settings...

The data is exported from the iRMC in logical sections, each corresponding to a selected option.

The option *All other Firmware settings* causes the firmware to export all current ConfigSpace values that have not already been exported together with another section. New implemented values are automatically exported with newer firmware versions.

Save

Click *Save* to save the selected settings.

Save All

Click *Save All* to save all the settings.

Import iRMC S4 Firmware settings in ServerView® WinSCU XML format from file

Config File

Configuration file (default: *iRMC_S4_settings.bin*) in the ServerView® WinSCU XML format from which you want to load the firmware settings onto the iRMC.

Browse

Opens a file browser that allows you to navigate to the configuration file.

Upload

Uploads the firmware setting in selected file.

7.7.4 Certificate Upload - Load the DSA/RSA Certificate and private DSA/RSA Key

The *Certificate Upload* page allows you to load a signed X.509 DSA/RSA certificate from a Certificate Authority (CA) and/or your private DSA/RSA key) onto the iRMC.

The iRMC is supplied with a predefined server certificate (default certificate). If you want to access the iRMC over secure SSL/TLS connections, it is recommended that you replace the certificate with one signed by a Certificate Authority (CA) as soon as possible.

Input format of the X.509 DSA/RSA certificate and the private DSA/RSA key:

The X.509 DSA/RSA certificate and the RSA/DSA must both be available in PEM-encoded format (ASCII/Base64).

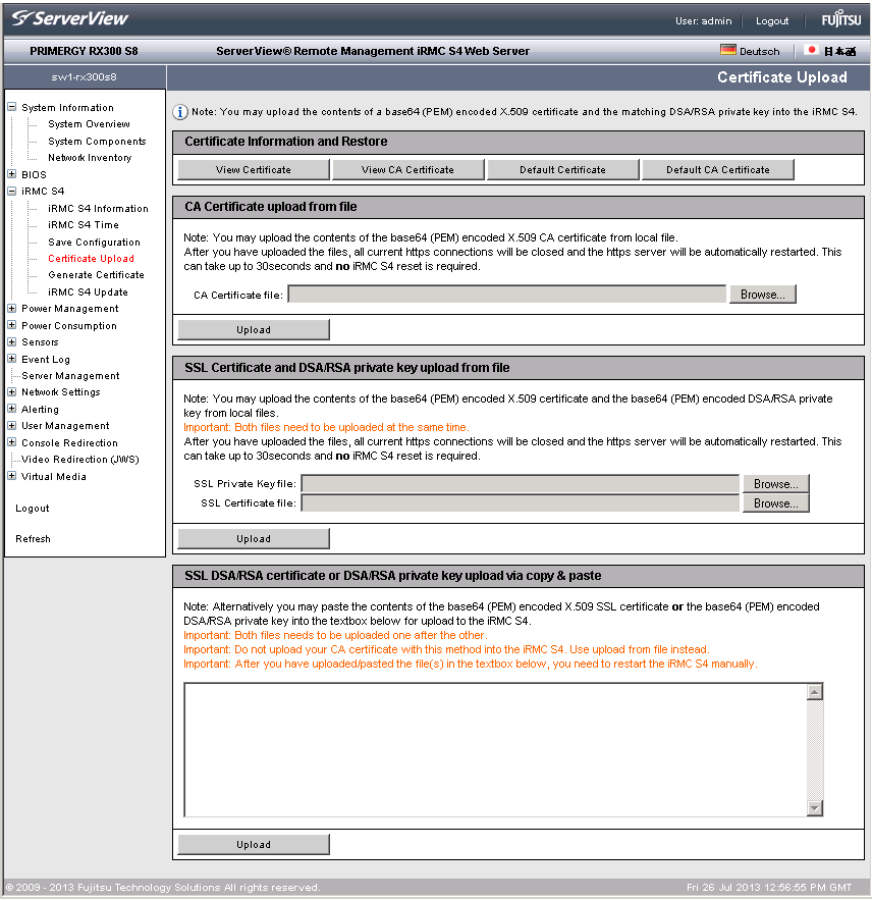


Figure 102: Certificate Upload page

Displaying the currently valid (CA) DSA/RSA certificate

- In the group *Certificate Information and Restore*, click *View Certificate* to show the currently valid certificate.
- In the group *Certificate Information and Restore*, click *View CA Certificate* to show the currently valid CA certificate.

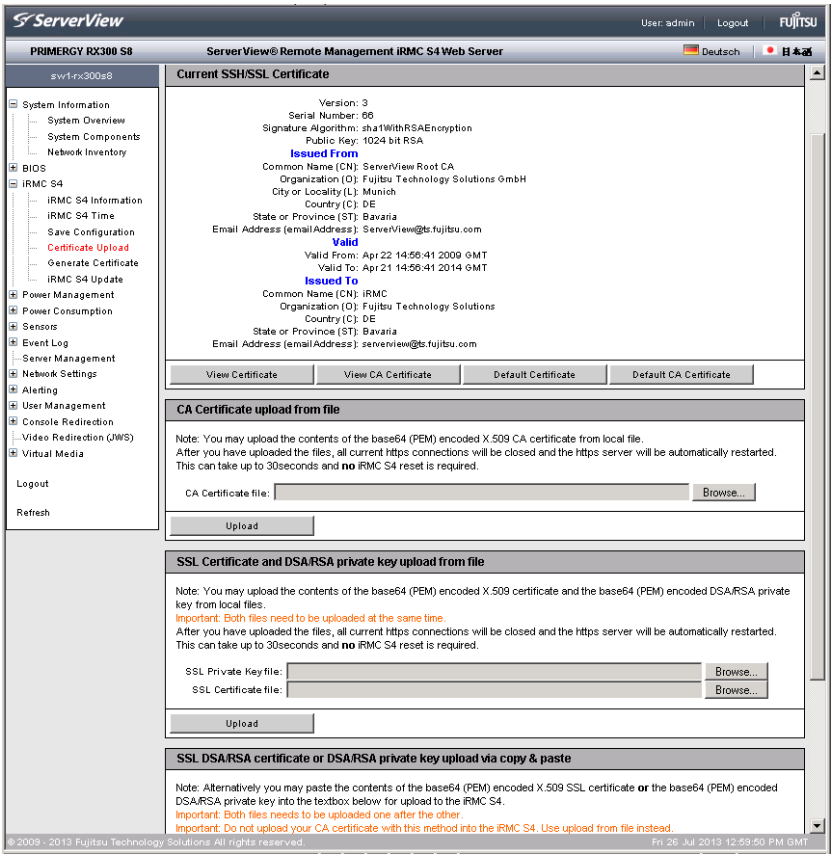


Figure 103: Certificate Upload page - display of the currently valid certificate

Restoring the default certificate/CA certificate

- In the group *Certificate Information and Restore*, click *Default Certificate* to restore the default certificate delivered with the firmware after you have confirmed that you wish to do so.
- In the group *Certificate Information and Restore*, click *Default CA Certificate* to restore the default CA certificate delivered with the firmware after you have confirmed that you wish to do so.

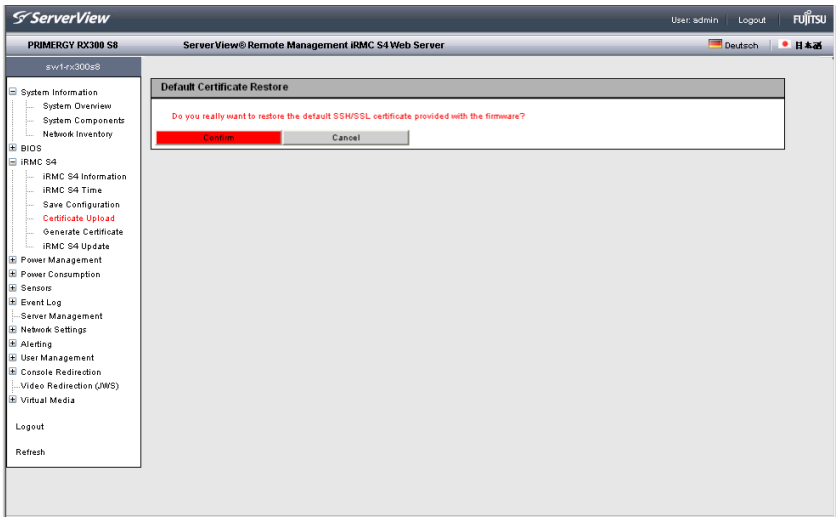


Figure 104: Certificate Upload page - Restoring the default CA certificate

Loading a CA certificate from a local file

Use the *CA Certificate upload from file* group to load a CA certificate from a local file.

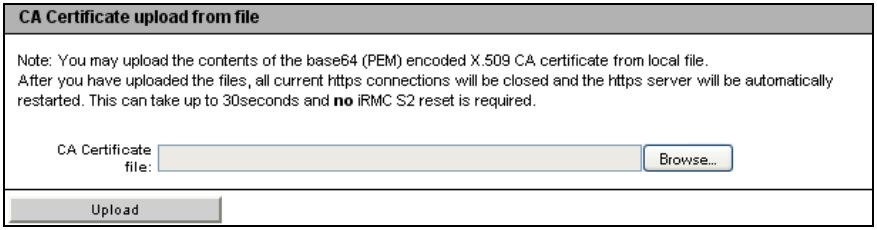


Figure 105: Loading a CA certificate from a local file

Proceed as follows:

- Save the CA certificate in a local file on the managed server.
- Specify this file under *CA Certificate File* by clicking the associated *Browse...* button and navigating to the file containing the CA certificate.
- Click *Upload* to load the certificate and/or the private key onto the iRMC.

  When you upload the certificate and/or private key, all the existing HTTPS connections are closed and the HTTPS server is automatically restarted. This process can take up to 30 seconds.

  No explicit reset of the iRMC is required.
- Click *View CA Certificate* to make sure that the certificate has been loaded successfully.

Loading the DSA/RSA certificate and private DSA/RSA key from local files

You do this using the group
SSL Certificate and DSA/RSA private key upload from file.

The private key and the certificate must be loaded on the iRMC at the same time.

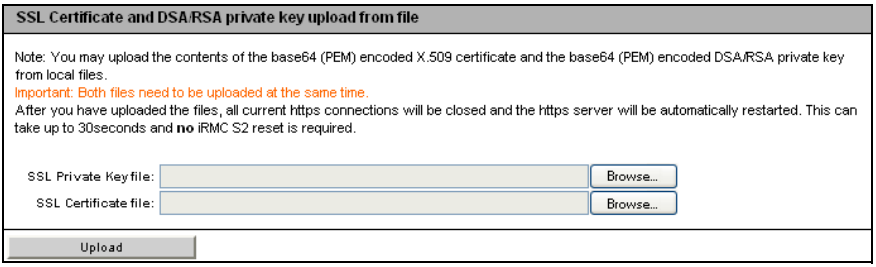


Figure 106: Loading the DSA/RSA certificate/private DSA/RSA key from local files

Proceed as follows:

- Save the X.509 DSA/RSA certificate and the private DSA/RSA key in corresponding local files on the managed server.
- Specify the files *Private Key File* and *Certificate File* by clicking on the associated *Browse* button and navigating to the file which contains the private key or the certificate.
- Click *Upload* to load the certificate and the private key onto the iRMC.

  When you upload the certificate and private key, all the existing HTTPS connections are closed and the HTTPS server is automatically restarted. This process can take up to 30 seconds.

  No explicit reset of the iRMC is required.
- Click *View Certificate* to make sure that the certificate has been loaded successfully.

Entering the DSA/RSA certificate/private DSARSA key directly

You do this using the group *SSL DSA/RSA certificate or DSA/RSA private upload via copy & paste*.

Do **not** use this method to load a root certificate onto the iRMC. Always load a root certificate using a file (see page 188).

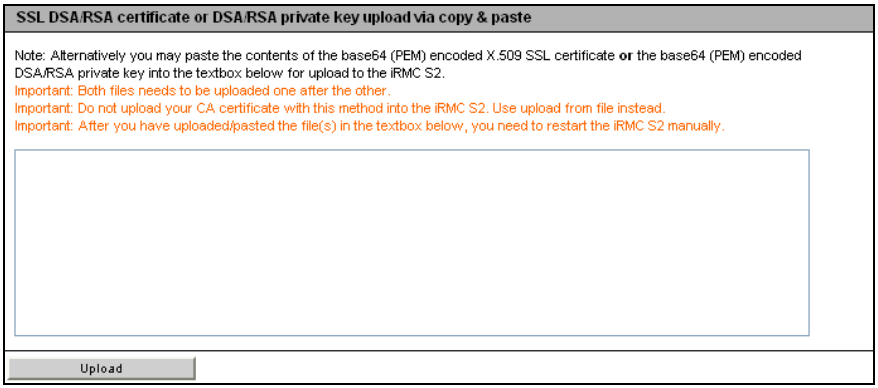


Figure 107: Entering the DSA/RSA certificate/private DSARSA key directly

Proceed as follows:

- Copy the X.509 DSA certificate **or** the private DSA key to the input area.

  You cannot simultaneously enter the certificate and key for the same upload.

- Click *Upload* to load the certificate or the private key onto the iRMC.
- Use the Remote Manager to reset the iRMC (see section "Service processor - IP parameters, identification LED and iRMC S4 reset" on page 378).

  This is necessary in order to make a certificate or private key loaded onto the iRMC valid.

- Click *View Certificate* to make sure that the certificate has been loaded successfully.

7.7.5 Generate a self-signed Certificate - Generate self-signed RSA Certificate

You can create a self-signed certificate using the *Generate a self-signed Certificate* page.

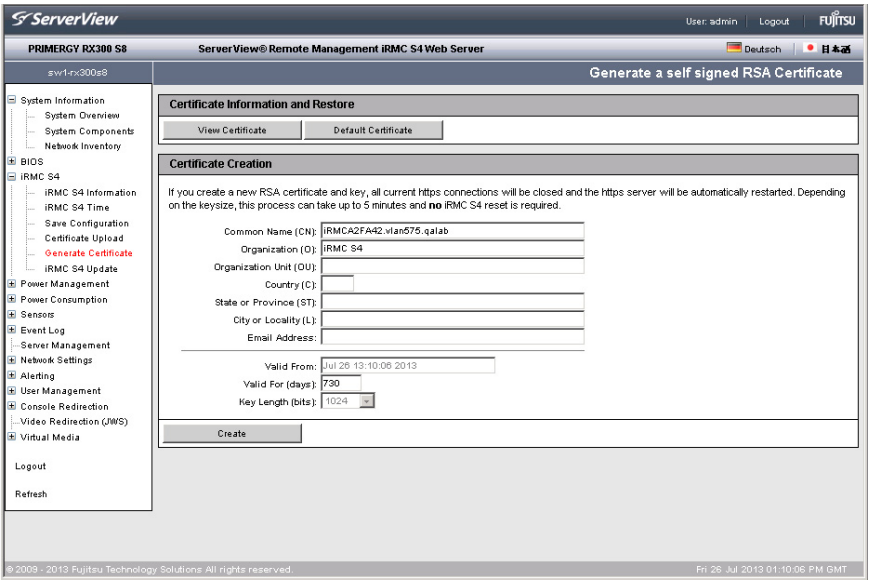


Figure 108: Generate a self-signed RSA Certificate page

Certificate Information and Restore

The *Certificate Information and Restore* group allows you to view the currently valid DSA/RSA certificate and/or restore the default RSA/DSA certificate.

View Certificate
: You can view the currently valid DSA/RSA certificate using this button.

Default Certificate
: You can use this button to restore the default certificate delivered with the firmware after you have confirmed that you wish to do so.

Certificate Creation

Proceed as follows to create a self-signed certificate:

- Enter the requisite details under *Certificate Creation*.
- Click *Create* to create the certificate.

  When generating the new certificate, all the existing HTTPS connections are closed and the HTTPS server is automatically restarted. This can take up to five minutes depending on the key length.

  No explicit reset of the iRMC is required.

7.7.6 iRMC S4 Firmware Update

The *iRMC S4 Firmware Update* page allows you to update the iRMC firmware online. To do this, you must provide the current firmware image either locally on a remote workstation or on a TFTP server.

Here you can also see information on the iRMC firmware and set the firmware selector.

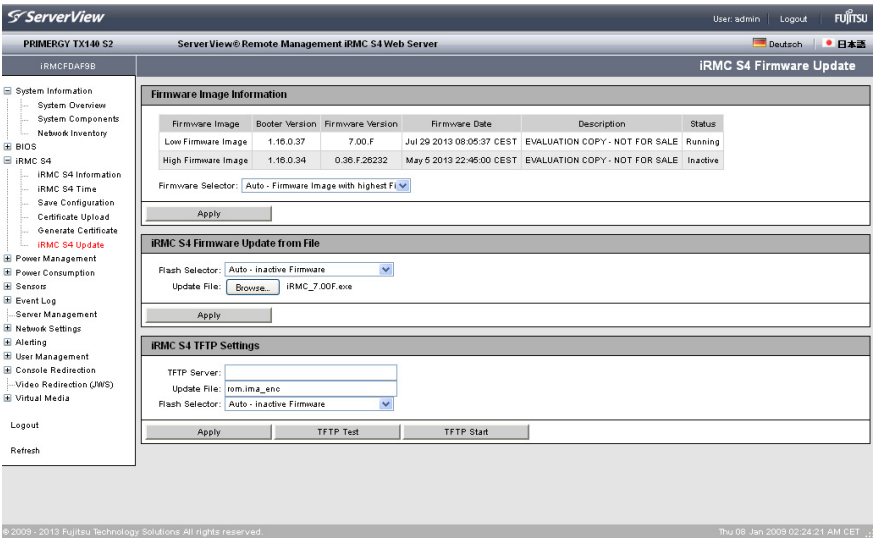


Figure 109: iRMC S4 Firmware Update page

Firmware Image Information

Under *Firmware Image Information*, you can view information on the firmware version and the SDRR version of the iRMC and set the firmware selector.

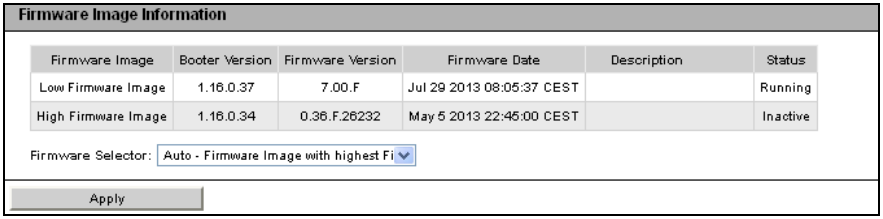


Figure 110: iRMC S4 Firmware Update - Firmware Information

Firmware Selector

You use the firmware selector to specify which firmware image is to be activated the next time the iRMC is rebooted.

You have the following options:

– *Auto - FW Image with highest FW version*

  The firmware image with the most recent version is selected automatically.

– *Low FW Image*

  The low firmware image is selected.

– *High FW Image*

  The high firmware image is selected.

– *Select FW Image with oldest FW version*

  The firmware image with the oldest version is selected.

– *Select most recently programmed FW*

  The most recently updated firmware image is selected.

– *Select least recently programmed FW*

  The least recently updated firmware image is selected.

Apply

Sets the firmware selector to the option you have set under *Firmware Selector*.

Firmware Update from File

The *Firmware Update from File* group allows you to update the iRMC firmware online. To do this, you must provide the current firmware image in a file on a remote workstation.

You will find the appropriate firmware image for your PRIMERGY server on ServerView Suite DVD 2 or you can download it under *http://support.ts.fujitsu.com/com/support/downloads.html*.

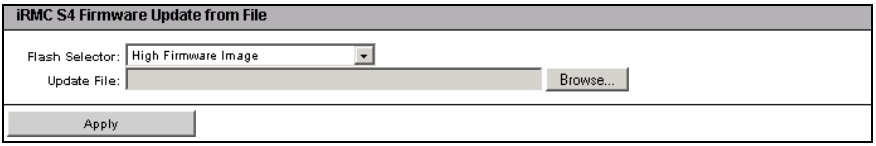


Figure 111: iRMC S4 Firmware Update page - Firmware Update from File

Flash Selector

Specify what iRMC firmware is to be updated.

You have the following options:

– *Auto - inactive firmware*

  The inactive firmware is automatically selected.

– *Low Firmware Image*

  The low firmware image (firmware image 1) is selected.

– *High Firmware Image*

  The high firmware image (firmware image 2) is selected.

Update file

File in which the firmware image is stored.

Only complete firmware images comprising a firmware version **and** a SDRR version can be updated (e.g. *RX30S8_07.01F_sdr03.47.bin*).

Browse

Opens a file browser that allows you to navigate to the update file.

Apply

Activates your settings and starts updating the iRMC firmware.

iRMC S4 TFTP Settings

The *iRMC S4 TFTP Settings* group allows you to update the iRMC firmware online. To do this, you must provide the current firmware image in a file on a TFTP server.

You will find the appropriate firmware image for your PRIMERGY server on ServerView Suite DVD 2 or you can download it under *http://support.ts.fujitsu.com/com/support/downloads.html*.

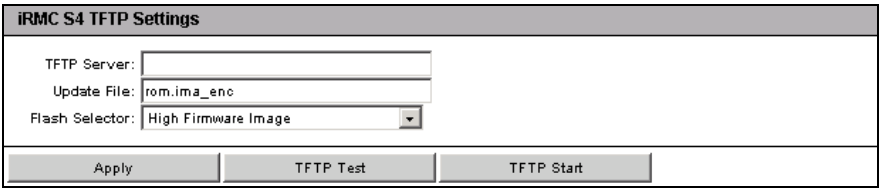


Figure 112: iRMC S4 Firmware Update page - iRMC S4 TFTP Settings

TFTP Server

IP address or DNS name of the TFTP server on which the file with the firmware image is stored.

Update file

File in which the firmware image is stored.

Only complete firmware image can be updated (e.g. *RX30S8_07.01F_sdr03.47.bin*).

Flash Selector

Specify what iRMC firmware is to be updated.

You have the following options:

– *Auto - inactive firmware*

  The inactive firmware is automatically selected.

– *Low Firmware Image*

  The low firmware image (firmware image 1) is selected.

– *High Firmware Image*

  The high firmware image (firmware image 2) is selected.

Apply

Activates your settings.

TFTP Test

Tests the connection to the TFTP server.

TFTP Start

Downloads the file containing the firmware image from the TFTP server and starts updating the iRMC firmware.

7.8 Power Management

The *Power Management* entry contains the links to the power management pages for your PRIMERGY server:

– "Power On/Off - power the server up/down" on page 198.

– "Power Options - Configuring power management for the server" on page 203.

– "Power Supply Info - Power supply and IDPROM data for the FRU components" on page 206.

7.8.1 Power On/Off - power the server up/down

The *Power On/Off* page allows you to power the managed server on and off. You are informed of the server's current power status and are also able to configure the behavior of the server during the next boot operation.

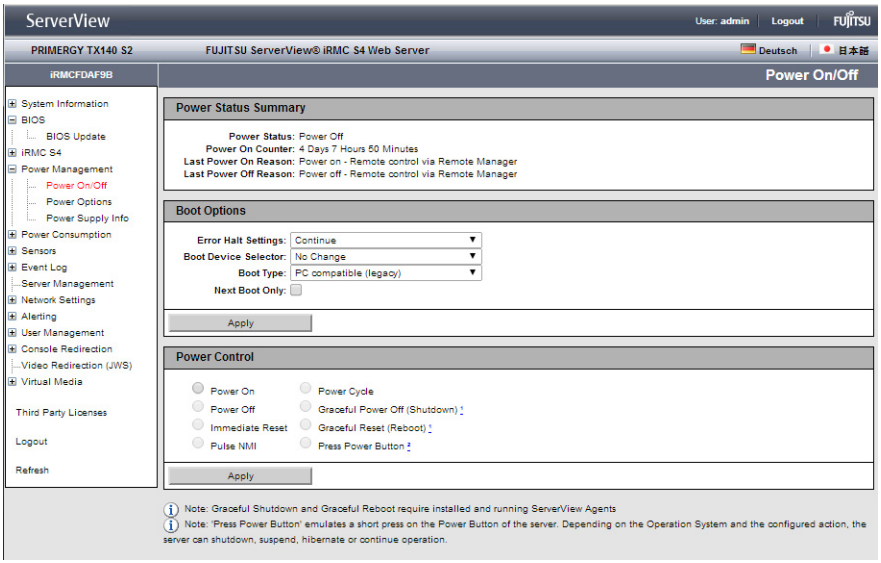


Figure 113: Power On/Off page

Power Status Summary

The *Power Status Summary* group provides information on the current power status of the server and on the causes for the most recent Power On/Power Off. In addition, a Power On counter records the total months, days and minutes during which the server has been powered.

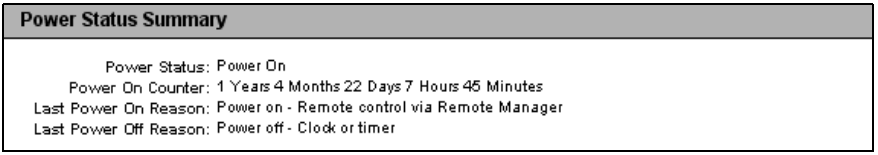

Power Status Summary
Power Status: Power On
Power On Counter: 1 Years 4 Months 22 Days 7 Hours 45 Minutes
Last Power On Reason: Power on - Remote control via Remote Manager
Last Power Off Reason: Power off - Clock or timer

Figure 114: Power On/Off page - Power Status Summary

Boot Options

The *Boot Options* group allows you to configure the behavior of the system each time it is booted. You can set whether the BIOS is to interrupt the boot process for the system if errors occur during the POST phase.

The options set here only apply to the next boot operation. After this, the default mechanism applies again.

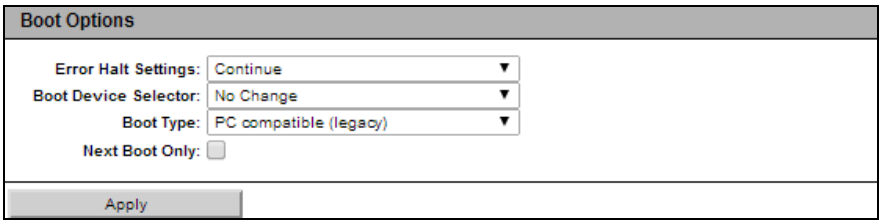


Figure 115: Power Management - Boot Options page

Error Halt Settings

Specifies the desired BIOS behavior.

Continue

Continue the boot process if errors occur during the POST phase.

Halt on errors

Interrupt the boot process if errors occur during the POST phase.

Boot Device Selector

Storage medium you wish to boot from.

The following options are available:

- *No change*: The system is booted from the same storage medium as previously.
- *PXE/iSCSI*: The system is booted from PXE/iSCSI over the network.
- *Harddrive*: The system is booted from hard disk.
- *CDROM/DVD*: The system is booted from CD /DVD.
- *Floppy*: The system is booted from floppy disk.
- *BIOS Setup*: The system enters BIOS setup when booting.

Boot Type

Determines the boot mode in which the system will be started at the next boot.

Depending on the server operating system, the following options are available for selection:

PC compatible (legacy)

The system is booted in legacy BIOS-compatibility mode.

Extensible Firmware Interface Boot (EFI)

The system is booted in UEFI boot mode (only on 64-bit operating systems).

Next Boot only

Settings apply to the next boot only.

► Click *Apply* to activate your settings.

Power Control - powering the server up and down/rebooting the server

The *Power Control* group allows you to power the server up/down or to reboot the server.

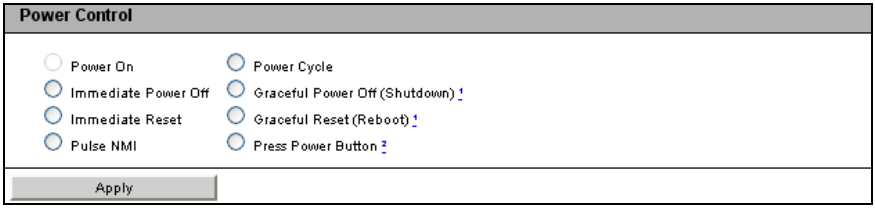


Figure 116: Power On/Off page, Restart (server is powered up)

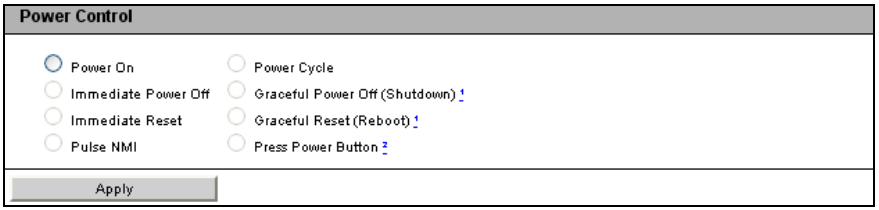


Figure 117: Power On/Off page, Restart (server is powered down)

Power On

Switches the server on.

Immediate Power Off

Powers the server down, regardless of the status of the operating system.

Immediate Reset

Completely restarts the server (cold start), regardless of the status of the operating system.

Pulse NMI

Initiates a non-maskable interrupt (NMI). A NMI is a processor interrupt that cannot be ignored by standard interrupt masking techniques in the system.

Press Power Button

Depending on the operating system installed and the action configured, you can trigger various actions by briefly pressing the power-off button. These actions could be shutting down the computer or switching it to standby mode or sleep mode.

Power Cycle

Powers the server down completely and then powers it up again after a configured period. You can configure this time in the *Power Cycle Delay* field of the *ASR&R Options* group (see page 246).

Graceful Power Off (Shutdown)

Graceful shutdown and power off.
This option is only available if ServerView agents are installed and signed onto the iRMC as “Connected”.

Graceful Reset (Reboot)

Graceful shutdown and reboot.
This option is only available if ServerView agents are installed and signed onto the iRMC as “Connected”.

► Click *Apply* to start the required action.

7.8.2 Power Options - Configuring power management for the server

The *Power Options* page allows you to define the server's behavior after a power outage and specify the server's power on/off times.

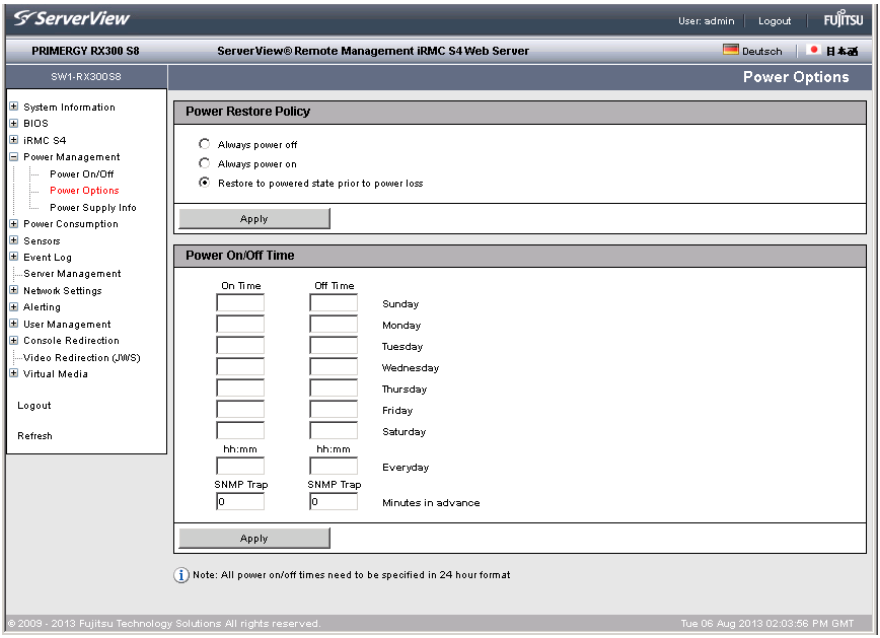


Figure 118: Power Options page

Power Restore Policy - Specify behavior of the server after a power outage

The *Power Restore Policy* group allows you to specify the server's power management behavior after a power outage.

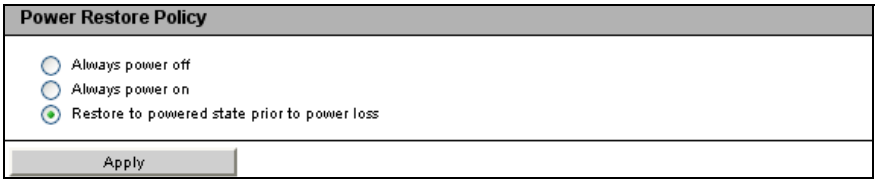


Figure 119: Power Options page, Power Restore Policy

Always power off
The server always remains powered down after a power outage.

Always power on
The server is always powered up again after a power outage.

Restore to powered state prior to power loss
The power up/down status of the server is restored to the status prior to the power outage.

► Click *Apply* to activate your settings.

The configured action will be performed after a power outage.

Power On/Off Time - Specify power on/off times for the server

The input fields of the *Power On/Off Time* group allow you to specify the times at which the server is powered up/down for the individual days of the week or for specified times during the day.

Specifications in the *Everyday* field take priority!

The *Trap* fields also allow you to configure whether the iRMC sends an SNMP trap to the management console before a planned power-on / power-off of the managed server and, if so, how many minutes before the event this should be done. No traps are sent if you specify the value “0”.

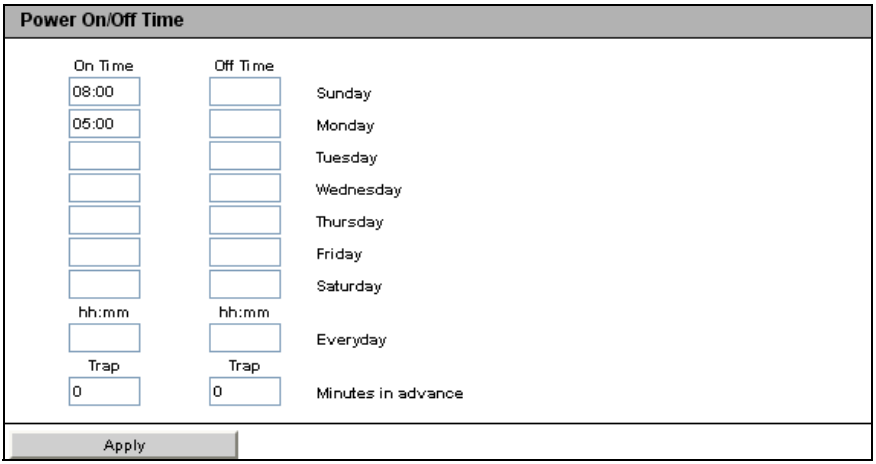
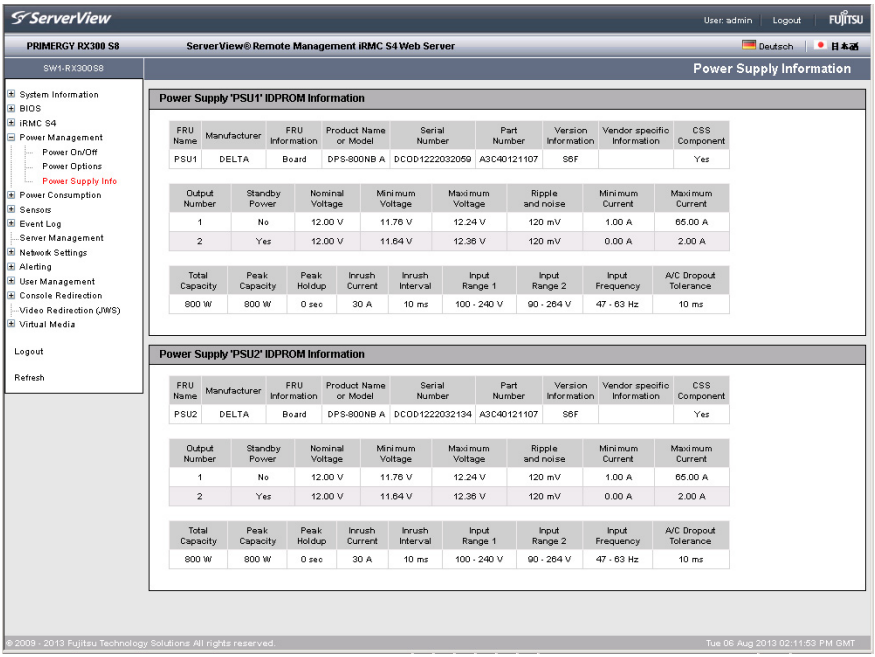


Figure 120: Power Options page, Power On/Off Time

7.8.3 Power Supply Info - Power supply and IDPROM data for the FRU components

The *Power Supply Info* page provides you with information on the power supply specifications and the IDPROM data of the FRUs of the server.

The *CSS Component* column indicates for each of the components whether the CSS (**C**ustomer **S**elf **S**ervice) functionality is supported.


ServerView
User: admin
Logout
FUJITSU
PRIMERGY RX300 S8
ServerView® Remote Management iRMC S4 Web Server
Deutsch
日本語
SW1-RX300S8
Power Supply Information
System Information
BIOS
iRMC S4
Power Management
Power On/Off
Power Options
Power Supply Info
Power Consumption
Sensors
Event Log
Server Management
Network Settings
Alerting
User Management
Console Redirection
Video Redirection (JWS)
Virtual Media
Logout
Refresh
Power Supply 'PSU1' IDPROM Information
FRU Name | Manufacturer | FRU Information | Product Name or Model | Serial Number | Part Number | Version Information | Vendor specific Information | CSS Component
PSU1 | DELTA | Board | DPS-800NB A | DCOD1222032059 | A3C40121107 | S6F | | Yes
Output Number | Standby Power | Nominal Voltage | Minimum Voltage | Maximum Voltage | Ripple and noise | Minimum Current | Maximum Current
1 | No | 12.00 V | 11.76 V | 12.24 V | 120 mV | 1.00 A | 65.00 A
2 | Yes | 12.00 V | 11.64 V | 12.36 V | 120 mV | 0.00 A | 2.00 A
Total Capacity | Peak Capacity | Peak Holdup | Inrush Current | Inrush Interval | Input Range 1 | Input Range 2 | Input Frequency | A/C Dropout Tolerance
800 W | 800 W | 0 sec | 30 A | 10 ms | 100 - 240 V | 90 - 264 V | 47 - 63 Hz | 10 ms
Power Supply 'PSU2' IDPROM Information
FRU Name | Manufacturer | FRU Information | Product Name or Model | Serial Number | Part Number | Version Information | Vendor specific Information | CSS Component
PSU2 | DELTA | Board | DPS-800NB A | DCOD1222032134 | A3C40121107 | S6F | | Yes
Output Number | Standby Power | Nominal Voltage | Minimum Voltage | Maximum Voltage | Ripple and noise | Minimum Current | Maximum Current
1 | No | 12.00 V | 11.76 V | 12.24 V | 120 mV | 1.00 A | 65.00 A
2 | Yes | 12.00 V | 11.64 V | 12.36 V | 120 mV | 0.00 A | 2.00 A
Total Capacity | Peak Capacity | Peak Holdup | Inrush Current | Inrush Interval | Input Range 1 | Input Range 2 | Input Frequency | A/C Dropout Tolerance
800 W | 800 W | 0 sec | 30 A | 10 ms | 100 - 240 V | 90 - 264 V | 47 - 63 Hz | 10 ms
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Tue 06 Aug 2013 02:11:53 PM GMT

Figure 121: Power Supply Info page

7.9 Power Consumption

The *Power Consumption* entry contains the links to the pages for monitoring and controlling the power consumption of the managed server:

– "Power Consumption Configuration - Configure power consumption of the server" on page 208.

– "Power Options - Configuring power management for the server" on page 203. (Not shown on all servers with iRMC.)

– "Power History - Show server power consumption" on page 215 (Not shown on all servers with iRMC.)

7.9.1 Power Consumption Configuration - Configure power consumption of the server

The *Power Consumption Configuration* page allows you to specify the mode the iRMC uses to control the power consumption of your PRIMERGY server.

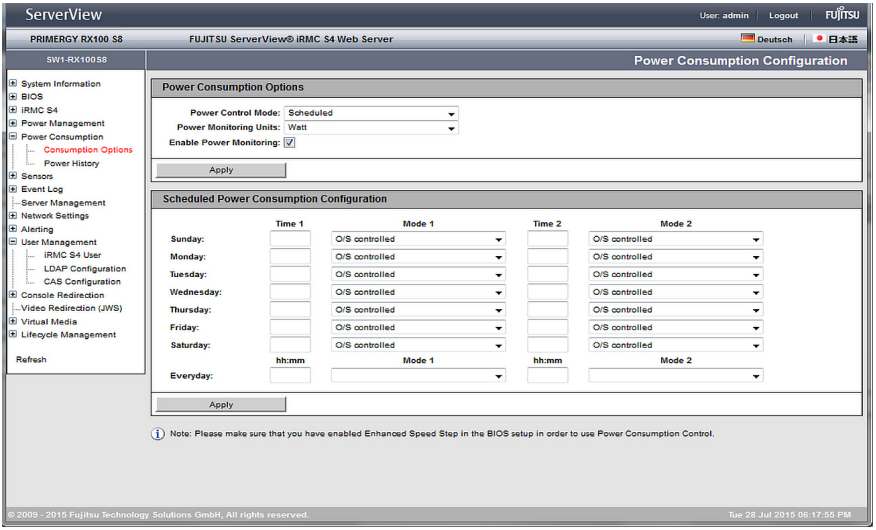


Figure 122: Power Consumption Configuration page

Prerequisite:

The following requirements must be met in order to configure power consumption control:

- The managed PRIMERGY server must support this feature.
- The *Enhanced Speed Step* or the *Processor Power Management* option must be enabled in the *Advanced* Menu of the BIOS setup.

If you set the “Power Limit” power control mode in the *Power Consumption Options* group or in the S*cheduled Power Consumption Configuration*, the *Power Limit Options* group is also displayed (see page 210).

Power Consumption Options

The *Power Consumption Options* group allows you to select the power control mode and specify whether the power consumption should be monitored over time.

Power Control Mode

Mode for controlling the power consumption of the managed server:

- O/S controlled:

  Power Consumption is controlled by the operating system of the managed server.

- *Minimum Power*:

  The iRMC controls the server to achieve the lowest possible power consumption. In this event, performance is not always ideal.

- *Scheduled*:

  The iRMC controls power consumption in accordance with a schedule (see "Scheduled Power Consumption Configuration" on page 210).

- *Power Limit*:

  The *Power Limit Options* group is displayed (see "Power Limit Options" on page 212).

Power Monitoring Units

Unit of electrical power used to display power consumption:

- *Watt*
- *BTU/h* (British Thermal Unit/hour, 1 BTU/h corresponds to 0.293 Watt).

Enable Power Monitoring

If you enable this option, power consumption is monitored over time.

This setting only takes effect on PRIMERGY servers that support power monitoring.

► Click *Apply* to activate your settings.

Scheduled Power Consumption Configuration

The *Scheduled Power Consumption Configuration* group allows you to specify in detail the schedules and modes (*O/S controlled, Minimum Power*, *Power Limit*) that the iRMC uses to control power consumption on the managed server.

The *Scheduled Power Consumption Configuration* group only appears if you have enabled the power control mode *scheduled* in the *Power Consumption Options* group.

Configuration for scheduled power control mode assumes that the *Enhanced Speed Step* option has been enabled in the BIOS setup. If this is not the case, a message to this effect is displayed.

If this message appears even though “Enhanced Speed Step” is enabled, this may be because:

– The CPU (e.g. low-power CPU) of the server does not support scheduled power control.

– The system is currently in the BIOS POST phase.

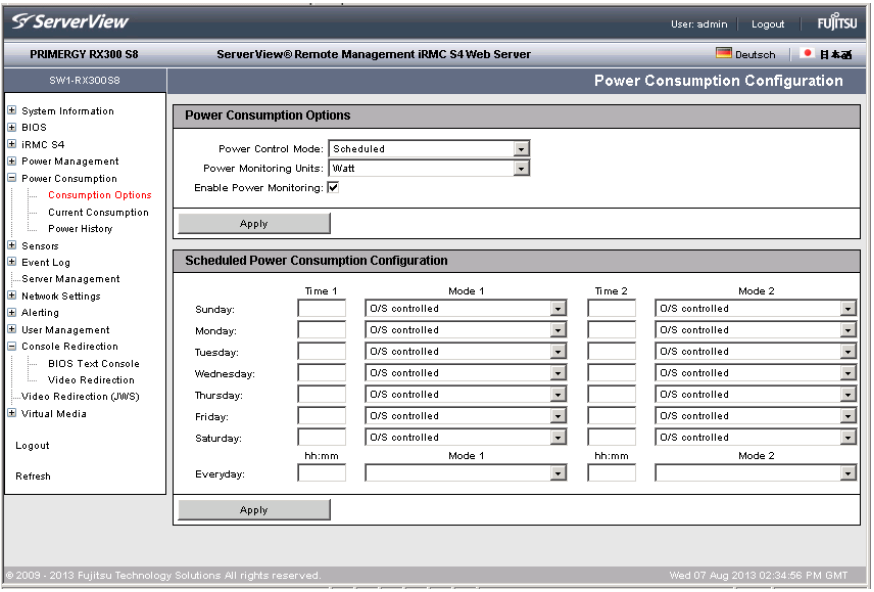


Figure 123: Power Consumption Configuration page (scheduled)

Time 1

Time [hh:ss] at which the iRMC starts power control as defined in *Mode 1* on the relevant day of the week.

Time 2

Time [hh:ss] at which the iRMC starts power control as defined in *Mode 2* on the relevant day of the week.

Mode 1

Power consumption mode used by the iRMC for power control as of *Time 1* on the relevant day of the week.

Mode 2

Power consumption mode used by the iRMC for power control as of *Time 2* on the relevant day of the week.

Set *Time 1* < *Time 2*, otherwise the power control mode specified under *Mode 2* will only be activated at *Time 2* on the relevant day of the following week.

Specifications in the *Everyday* field take priority.

► Click *Apply* to activate your settings.

You can also configure scheduled power control using the Server Configuration Manager (see chapter "Configuring iRMC S4 using the Server Configuration Manager" on page 387).

Power Limit Options

The *Power Limit Options* group is displayed under the following circumstances:

– The power control mode *Power Limit* is selected and enabled in the *Power Consumption Options* group.

– The power control mode *Scheduled* is enabled in the *Power Consumption Options* group and the power control mode *Power Limit* is enabled at least once in the *Scheduled Power Consumption Configuration* group.

  The power limit then applies to all periods for which this power control mode is enabled in the *Scheduled Power Consumption Configuration* group.

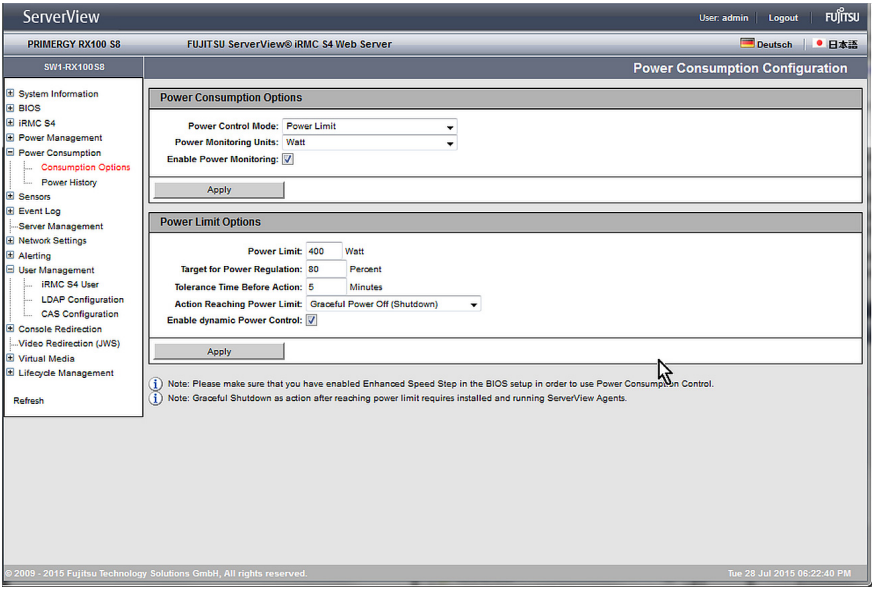


Figure 124: Power Consumption Configuration page (Power Limit Options)

Power Limit

Maximum power consumption (in Watts).

When this is reached, the action defined in the *Action Reaching Power Limit* field is performed. When the threshold is exceeded, a warning message is written to the iRMC S4 SEL ("CPU Throttlink activated by Power Capping").

Target for Power Regulation

The iRMC attempts to adjust the power consumption to this value which is to be specified as a percentage of the maximum power consumption specified in the *Power Limit* field.

Tolerance Time Before Action

Period (in minutes) the *Power Limit* needs to be exceeded. Not until then the action specified in the *Action Reaching Power Limit* field will be performed.

Action Reaching Power Limit

Action to be performed when the *PowerLimit* was exceeded for at least the period specified in the *Tolerance Time Before Action* field.

Continue

No action is performed.

Graceful Power Off (Shutdown)

Shut down the system "gracefully" and power it down.

This option is only supported if ServerView agents are installed and signed onto the iRMC as “Connected”.

Immediate Power Off

The server is immediately powered down irrespective of the status of the operating system.

Enable dynamic Power Control

The power limit is controlled dynamically. If this option is enabled, the iRMC lowers power consumption of the server as soon as the *Power Limit* is exceeded. The iRMC attempts to adjust power consumption to the level specified in the *Target for Power Regulation* field.

7.9.2 Current Power Consumption - Show the current power consumption

This view is not supported by all PRIMERGY servers with iRMC.

The *Current Power Consumption* page shows the current power consumption of the system components and of the overall system.

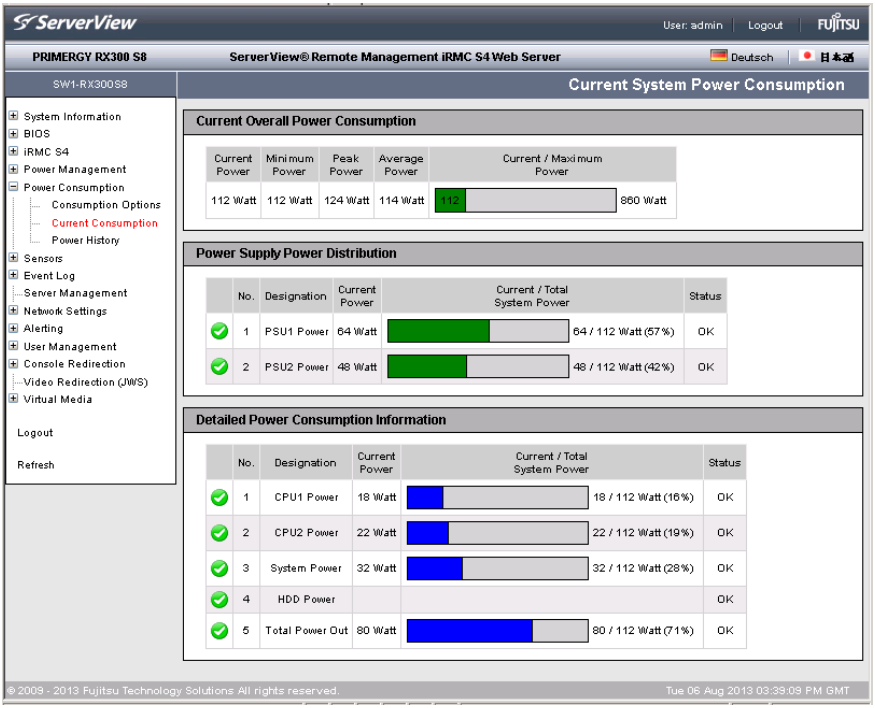


Figure 125: Current Power Consumption page

7.9.3 Power History - Show server power consumption

The *Power Consumption History* page charts the power consumption of your PRIMERGY server.

This page is not shown on all PRIMERGY servers with iRMC.

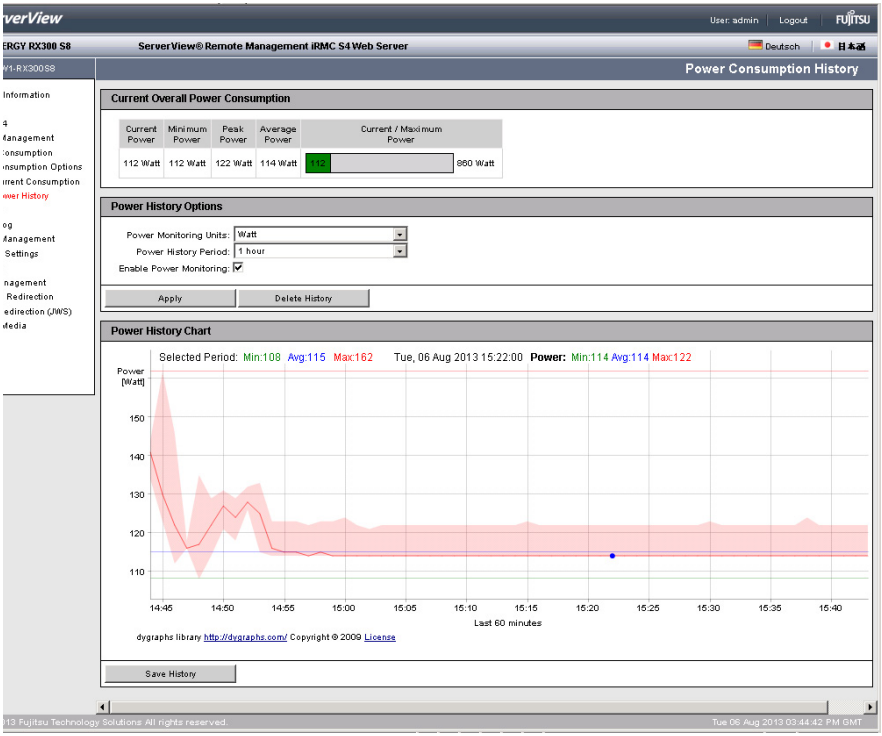


Figure 126: Power Consumption History page

Current Power Consumption

This option is not supported for all PRIMERGY servers.

Under *Current Power Consumption* you can see all the measurements for the server power consumption in the current interval: current, minimum, maximum and average power consumption.

A graphical display also shows the current power consumption of the server compared with the maximum possible power consumption.

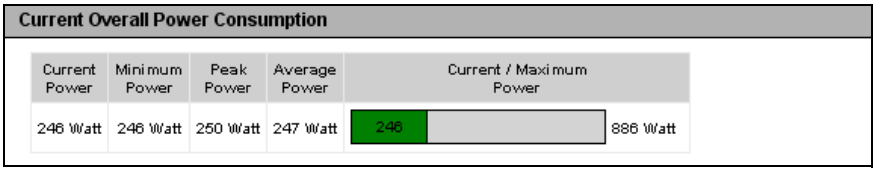


Figure 127: Power Consumption History - Current Power Consumption

Power History Options

You specify the parameters for displaying the power consumption under Power History Options.

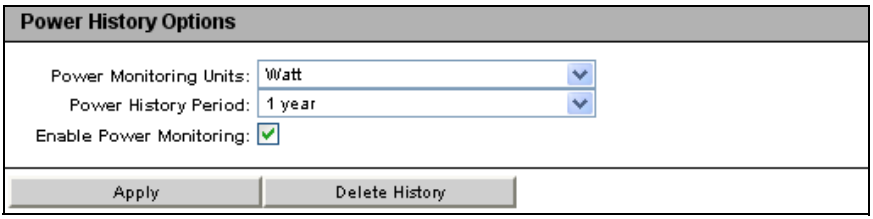


Figure 128: Power Consumption History - Power History Options

Power Monitoring Units

Electrical power units:

- Watt
- *BTU/h* (British Thermal Unit/hour, 1 BTU/h corresponds to 0.293 Watt).

Power History Period

Period for which the power consumption is charted.

The following intervals can be selected:

1 hour

Default.
Measurements for the last hour (60 values). Since one measurement is generated every minute, this shows all the measurements of the last hour.

12 hours

Measurements for the last 12 hours. One measurement is shown for each five-minute period (every 5th measurement, 144 values in all).

1 day

Measurements for the last 24 hours. One measurement is shown for each 10-minute period (every 10th measurement, 144 values in all).

1 week

The measurements for the last week. One measurement per hour is shown (every 60th measurement, 168 values in all).

2 weeks

The measurements for the last month. One measurement is shown for each period of approx four hours (every 120th measurement, 168 values in all).

1 month

The measurements for the last 6 months. One measurement is shown for each period of approx one day (every 240th measurement, 180 values in all).

1 year

Measurements for the last 12 months. One measurement is shown for each two-day period (every 2880th measurement, 180 values in all).

5 years

Measurements for the last 5 years. One measurement is shown for each two-day period (every 2880th measurement, 180 values in all).

Enable Power Monitoring

Specifies whether power monitoring is to be carried out. Power Monitoring is enabled by default.

This setting only applies to PRIMERGY servers that support consumption logging.

- Click *Apply* to activate your settings.
- Click *Delete History* to delete the displayed data.

Power History Chart

Power History Chart shows the power consumption of the managed server over time in the form of a graph (using the settings made under *Power History Options*). The difference between the actual power consumption and the power consumption displayed in the power history chart may amount to about 20%.

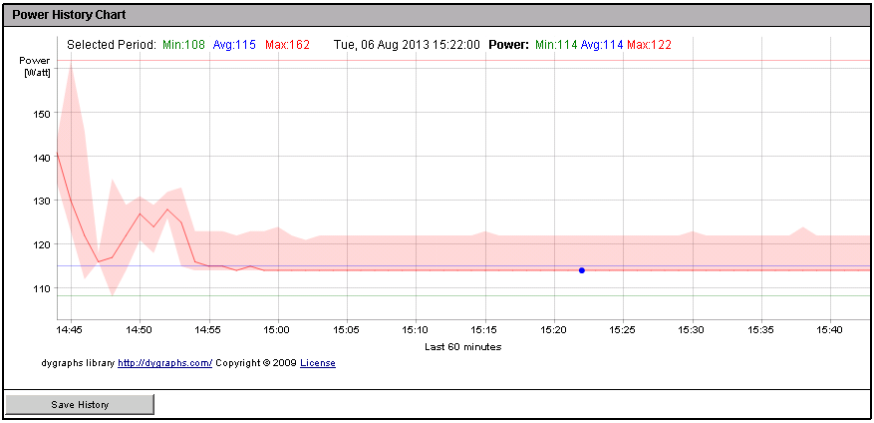


Figure 129: Power Consumption History - Power History Chart

7.10 Sensors - Check status of the sensors

The “Sensors” entry provides you with pages which allow you to check the statuses of sensors of the managed server:

- "Fans - Check fans" on page 220.
- "Temperature - Report the temperature of the server components" on page 222.
- "Voltages - Report voltage sensor information" on page 224.
- "Power Supply - Check power supply" on page 225.
- "Component Status - Check status of the server components" on page 227.

To facilitate checking the status, the sensor status is not only shown in the form of the current value, but also using a color code and a status icon:

Black (font color)/	The measured value is within the normal operational value range.
Orange (font color)/	The measured value has exceeded the warning threshold. System operation is not yet jeopardized.
Red (font color)/	The measured value has exceeded the critical threshold. System operation may be jeopardized and there is a risk of loss of data integrity.

Table 7: Status of the sensors

7.10.1 Fans - Check fans

The *Fans* page provides information on fans and their status.

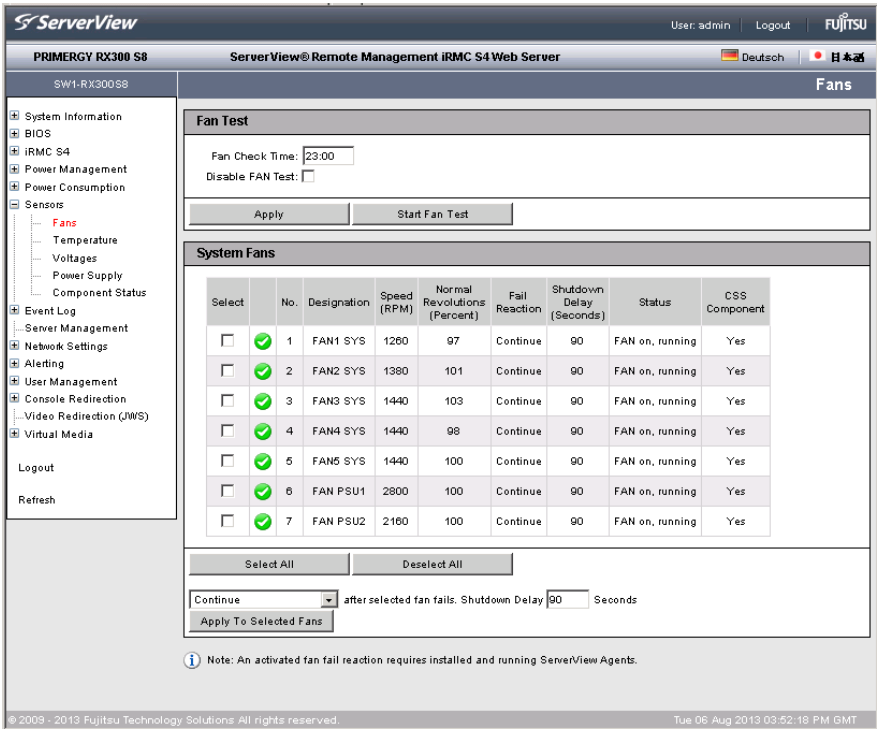


Figure 130: Fans page

Fan Test - Test fans

The *Fan Test* group allows you to specify a time at which the fan test is started automatically or to start the fan test explicitly.

Fan Test performs the fan test with a speed near to the currently required speed. Thus, the fan test is not acoustically noticeable.

Fan Check Time
Enter the time at which the fan test is to be started automatically.

Disable Fan Test
Select this option to disable fan testing.

- Click *Apply* to activate your settings.
- Click *Start Fan Test* to start the fan test explicitly.

System Fans - Specify server behavior in the event that a fan fails

The *System Fans* group provides you with information on the status of the fans. You can use the options or buttons to select individual fans or all the fans and specify whether the server should be shut down after a specified number of seconds if this fan fails.

Select all
: Selects all fans.

Deselect all
: All selections are cancelled.

- Select the fans for which you wish to define the behavior in the event of a fault.
- Define the behavior in the event of a fault using the list at the bottom of the work area:
  - Choose *continue* if the server is not to be shut down if the selected fans fail.
  - Choose *Shutdown and Power-off* if the server is to be shut down and powered down if the selected fans fail.

    If you choose this option, you must also specify the time in seconds between failure of the fan and shutdown of the server (Shutdown Delay) in the field to the right of the list.

    Shutdown and Power-off will be executed in case of a fan failure regardless of whether ServerView agents are running on the managed server.

    In the case of redundant fans, shutdown is only initiated if more than one fan is faulty and *Shutdown and Power-off* is also set for these fans.
- Click *Apply to the selected Fans* to activate your settings for the selected fans.

If in the BIOS Setup the fans of the managed node are set to high speed, a note informs about this setting.

7.10.2 Temperature - Report the temperature of the server components

The *Temperature* page provides information on the status of the temperature sensors which measure the temperature at the server components, such as the CPU and the Memory Module and the ambient temperature.

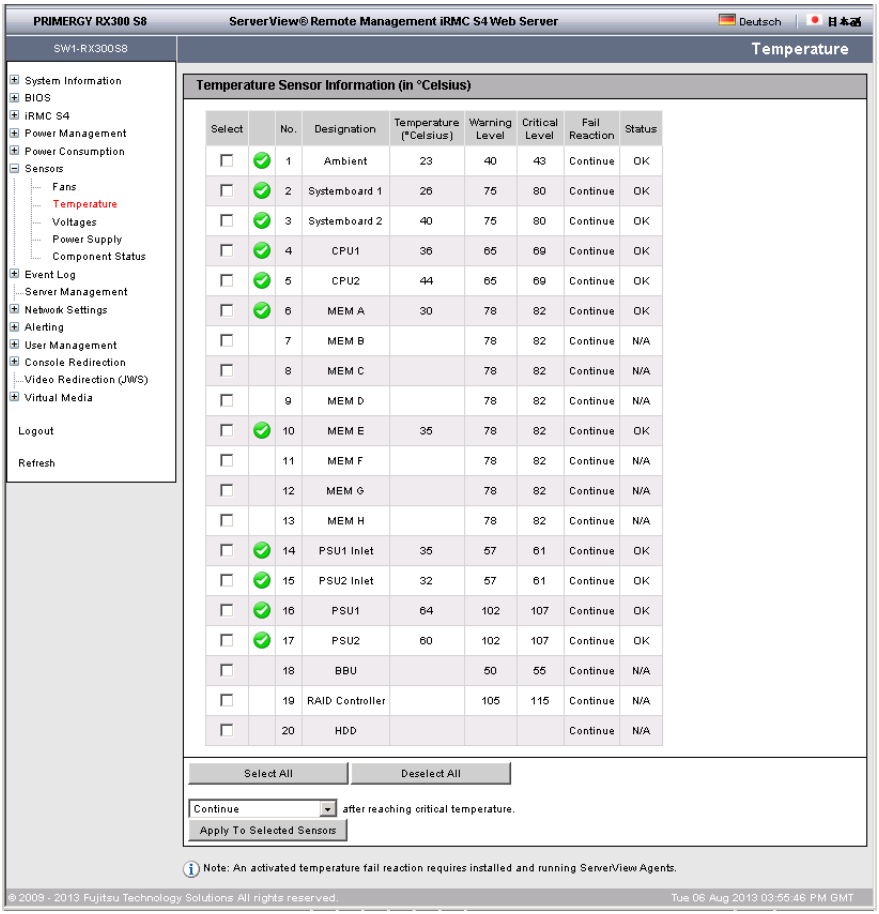


Figure 131: Temperature page

You can use the options or buttons to select individual temperature sensors or all the temperature sensors and specify whether the server is to be shut down if the critical temperature is reached at the selected sensors.

Select all

Selects all temperature sensors.

Deselect all

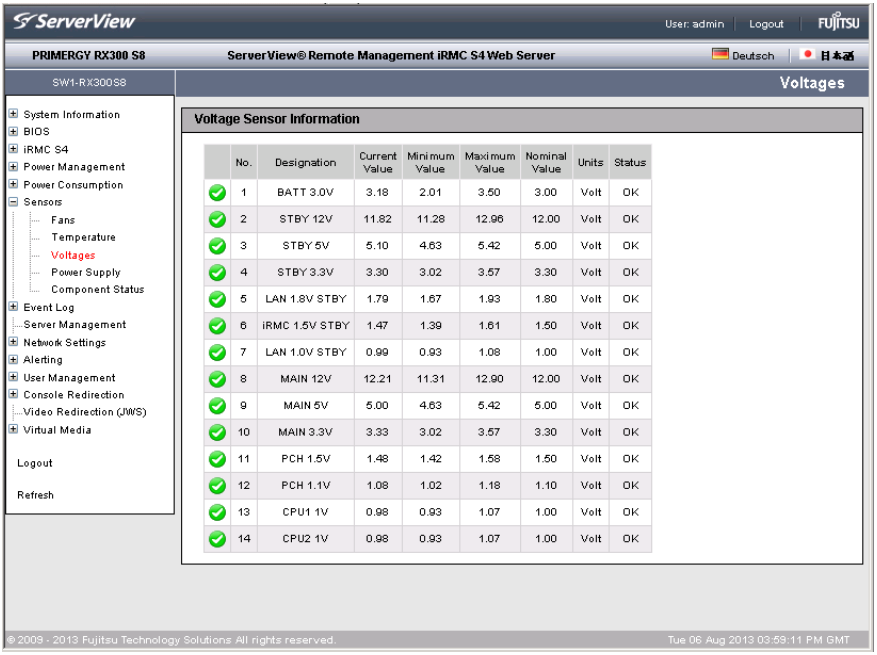
All selections are cancelled.

- ► Select the sensors for which you wish to define the behavior in the event that the critical temperature is reached.
- ► Define the behavior in the event that the critical temperature is reached using the list at the bottom of the work area:
  - – Choose *continue* if the server is not to be shut down if the critical temperature is reached at the selected sensors.
  - – Choose *Shutdown and Power-off* if the server is to be shut down and powered down if the critical temperature is reached at the selected sensors.

    Shutdown and Power-off is executed when the critical temperature is reached, regardless of whether ServerView agents are running on the managed server.
- ► Click *Apply to the selected Sensors* to activate your settings for the selected temperature sensors.

7.10.3 Voltages - Report voltage sensor information

The *Voltages* page provides information on the status of voltage sensors assigned to the server components.


ServerView
User: admin
Logout
FUJITSU
PRIMERGY RX300 S8
ServerView® Remote Management iRMC S4 Web Server
Deutsch
日本語
SW1-RX300S8
Voltages
System Information
BIOS
iRMC S4
Power Management
Power Consumption
Sensors
Fans
Temperature
Voltages
Power Supply
Component Status
Event Log
Server Management
Network Settings
Alerting
User Management
Console Redirection
Video Redirection (JWS)
Virtual Media
Logout
Refresh
Voltage Sensor Information
No. Designation Current Value Minimum Value Maximum Value Nominal Value Units Status
1 BATT 3.0V 3.18 2.01 3.50 3.00 Volt OK
2 STBY 12V 11.82 11.28 12.96 12.00 Volt OK
3 STBY 5V 5.10 4.63 5.42 5.00 Volt OK
4 STBY 3.3V 3.30 3.02 3.57 3.30 Volt OK
5 LAN 1.8V STBY 1.79 1.67 1.93 1.80 Volt OK
6 iRMC 1.5V STBY 1.47 1.39 1.61 1.50 Volt OK
7 LAN 1.0V STBY 0.99 0.93 1.08 1.00 Volt OK
8 MAIN 12V 12.21 11.31 12.90 12.00 Volt OK
9 MAIN 5V 5.00 4.63 5.42 5.00 Volt OK
10 MAIN 3.3V 3.33 3.02 3.57 3.30 Volt OK
11 PCH 1.5V 1.48 1.42 1.58 1.50 Volt OK
12 PCH 1.1V 1.08 1.02 1.18 1.10 Volt OK
13 CPU1 1V 0.98 0.93 1.07 1.00 Volt OK
14 CPU2 1V 0.98 0.93 1.07 1.00 Volt OK
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Tue 06 Aug 2013 03:59:11 PM GMT

Figure 132: Voltages page

7.10.4 Power Supply - Check power supply

The *Power Supply* page provides information on the power supplied from the power supply units. For some server types, the *Power Supply* page also allows you to configure power supply redundancy settings.

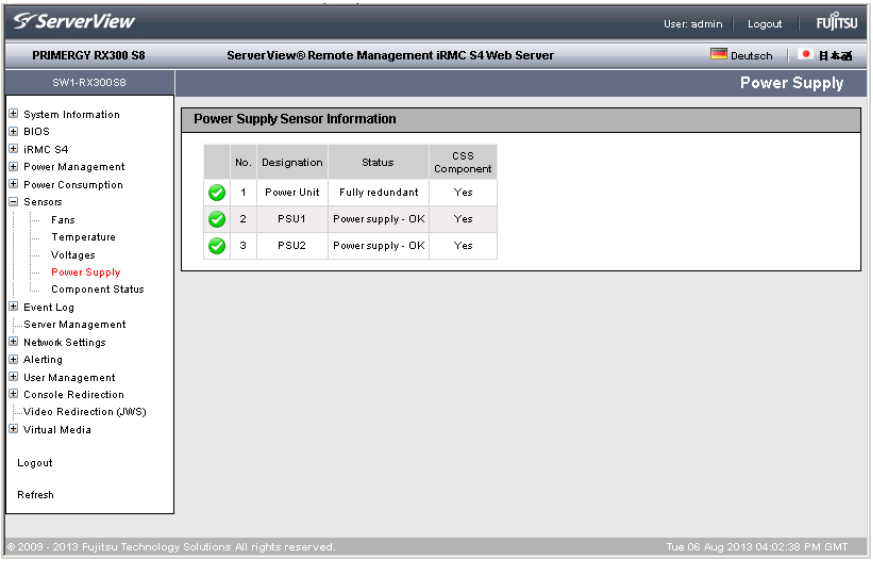


Figure 133: Power Supply page

Supported for iRMC S4

Power Supply Redundancy Configuration

This functionality can only be configured on systems with more the two PSUs

The *Power Supply Redundancy Configuration* group allows you to set the redundancy mode for the managed server. It depends on the servers capabilities which options are actually available.

PSU Redundancy 1 + 1 Spare PSU
: System operation is guaranteed for 1 PSU fail in the case of 2 PSUs in total.

PSU Redundancy 2+ 1 Spare PSU
: System operation is guaranteed for 1 PSU fail in the case of 3 PSUs in total.

PSU Redundancy 3+ 1 Spare PSU
: System operation is guaranteed for 1 PSU fail in the case of 4 PSUs in total.

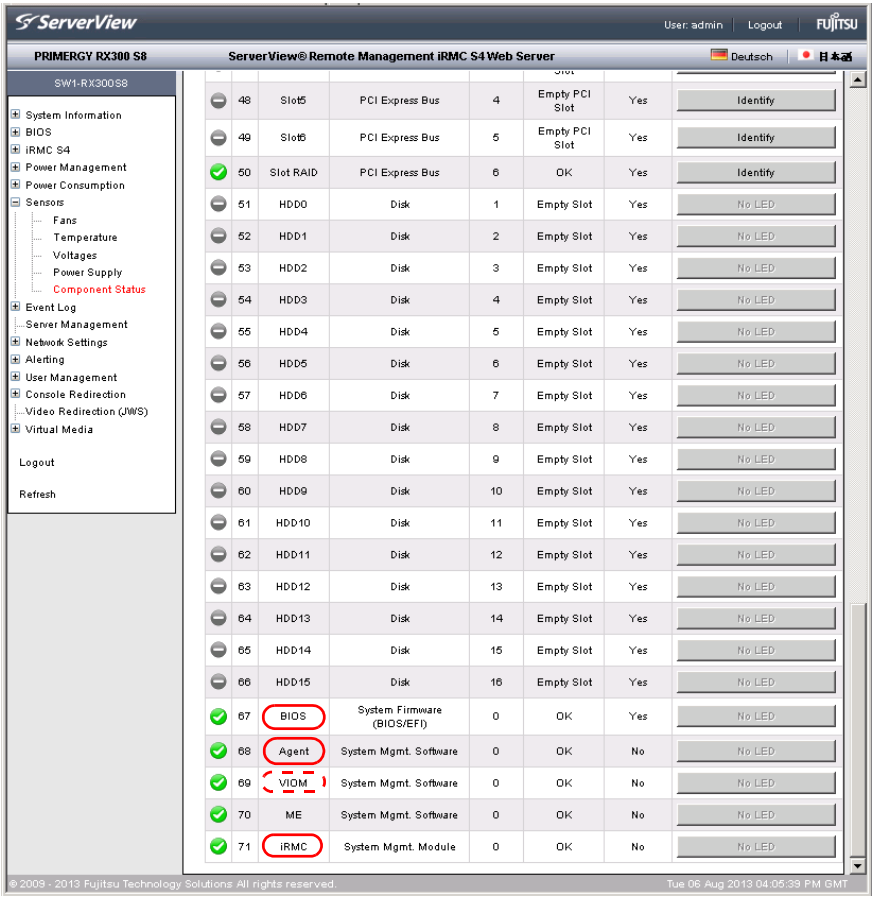
AC Redundancy 2 + 2 (2 AC sources)
: 2 of the 4 PSUs are each connected to a separate AC source. This ensures that the system can continue operation even if a power line or a single PSU fails.

AC Redundancy 1 + 1 (2 AC sources)
: Each PSU (of 2 PSUs in total) is connected to a separate AC source. This ensures that the system can continue operation even if a power line or a single PSU fails.

7.10.5 Component Status - Check status of the server components

The *Component Status* page provides information on the status of the server components. The *CSS Component* column indicates for each of the components whether the CSS (**C**ustomer **S**elf **S**ervice) functionality is supported.

When the server chassis is opened, components with an LED can be easily identified by clicking the corresponding *Identify* button in the *Components Status* page.


ServerView
User: admin
Logout
FUJITSU
PRIMERGY RX300 S8
ServerView® Remote Management iRMC S4 Web Server
Deutsch
SW1-RX300S8
System Information
BIOS
iRMC S4
Power Management
Power Consumption
Sensors
Fans
Temperature
Voltages
Power Supply
Component Status
Event Log
Server Management
Network Settings
Alerting
User Management
Console Redirection
Video Redirection (JWS)
Virtual Media
Logout
Refresh
48 Slot5 PCI Express Bus 4 Empty PCI Slot Yes Identify
49 Slot6 PCI Express Bus 5 Empty PCI Slot Yes Identify
50 Slot RAID PCI Express Bus 6 OK Yes Identify
51 HDD0 Disk 1 Empty Slot Yes No LED
52 HDD1 Disk 2 Empty Slot Yes No LED
53 HDD2 Disk 3 Empty Slot Yes No LED
54 HDD3 Disk 4 Empty Slot Yes No LED
55 HDD4 Disk 5 Empty Slot Yes No LED
56 HDD5 Disk 6 Empty Slot Yes No LED
57 HDD6 Disk 7 Empty Slot Yes No LED
58 HDD7 Disk 8 Empty Slot Yes No LED
59 HDD8 Disk 9 Empty Slot Yes No LED
60 HDD9 Disk 10 Empty Slot Yes No LED
61 HDD10 Disk 11 Empty Slot Yes No LED
62 HDD11 Disk 12 Empty Slot Yes No LED
63 HDD12 Disk 13 Empty Slot Yes No LED
64 HDD13 Disk 14 Empty Slot Yes No LED
65 HDD14 Disk 15 Empty Slot Yes No LED
66 HDD15 Disk 16 Empty Slot Yes No LED
67 BIOS System Firmware (BIOS/EFI) 0 OK Yes No LED
68 Agent System Mgmt. Software 0 OK No No LED
69 VIOM System Mgmt. Software 0 OK No No LED
70 ME System Mgmt. Software 0 OK No No LED
71 iRMC System Mgmt. Module 0 OK No No LED
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Tue 06 Aug 2013 04:05:39 PM GMT

Figure 134: Component Status page

Identify

Lights-up the LED that is attached to the related sever component. The LED's label turns to *Identify Off*. A green LED symbol instead of the status icon is shown in the leftmost column of the *Component Status* page.

If a server component has no LED, the *Identify* button is grayed-out and labeled *No LED*.

Identify Off

Lights-off the LED that is attached to the related sever component. The LED's label turns to *Identify*. The green LED symbol in the leftmost column of the *Component Status* page disappears and the status symbol is shown again.

Entries with Designation "iRMC", "Agent", "BIOS", or "VIOM"

Entries with the *Designation* "iRMC", "Agent", "BIOS", or "VIOM" indicate that the iRMC, the agent, the BIOS, or VIOM has detected an error. It does not mean that the iRMC, the agent, the BIOS, or VIOM itself is defective.

Entries with Designation "HDD" and "HDD<n>, PCIeSSD<n>, agentless HDD monitoring ("out-of-band" HDD monitoring)

Entries with the *Designation* "HDD" or "HDD<n>", or "PCIsSSD<n>" (with n = 0, 1, 2, ...) indicate the statuses of Hard Disk Drives (HDD) or Solid State Disks (SSD):

– HDD/SSD component status is only displayed if ServerView RAID is installed.

– The entry with *Designation* "HDD" indicates the overall HDD status of the server by summarizing the statuses of the individual HDDs.

– The overall HDD status of the server is read and reported to the iRMC by the ServerView agents and the ServerView RAID Manager.

– An entry with *Designation* "HDD<n>" or "PCIeSSD<n>" (with n = 0, 1, 2, ...) indicates the status of an individual HDD or SSD.

Please note:

– The iRMC supports this feature only if the backplane supports this feature.

– This feature is deactivated if "RAID Information" is enabled.

– This feature is only supported if the managed PRIMERGY server supports the "agentless HDD monitoring" function (also known as "out-of-band HDD monitoring").

If these requirements are met, the HDD<n> status of each individual HDD and the "PCIeSSD<n>" status of each SSD is reported directly to the iRMC i.e. without using the ServerView agents.

✓	49	HDD0	Disk / Disk Bay	1	OK
✓	50	HDD1	Disk / Disk Bay	2	OK
✓	51	HDD2	Disk / Disk Bay	3	OK
✓	52	HDD3	Disk / Disk Bay	4	OK
✓	53	PCIeSSD0	Disk / Disk Bay	49	OK
✓	54	PCIeSSD1	Disk / Disk Bay	50	OK
⊖	55	PCIeSSD2	Disk / Disk Bay	51	Empty Slot
⊖	56	PCIeSSD3	Disk / Disk Bay	52	Empty Slot
⊖	57	PCIeSSD0 Rear	Disk / Disk Bay	57	Empty Slot
⊖	58	PCIeSSD1 Rear	Disk / Disk Bay	58	Empty Slot
✓	59	PCIeSSD2 Rear	Disk / Disk Bay	59	OK
✓	60	PCIeSSD3 Rear	Disk / Disk Bay	60	OK

Figure 135: Status display for individual HDDs and SSDs

The precise entries displayed in the *Component Status Sensor Information* table, therefore, depend on the server state and whether the server supports "agentless HDD monitoring":

- The entry with *Designation* "HDD" only shows a status in the *Signal Status* column if the ServerView agents and the ServerView RAID Manager are installed and running on the managed server. Otherwise, "N/A" (not available) is displayed in the *Signal Status* column instead.
- HDD or SSD Component Status is not shown.
- Status *Prefail* is not supported for all HDDs or SSDs.
- The entries with *Designation* "HDD<n> or "PCIeSSD<n>" (with n = 0, 1, 2, ...) are only displayed if the managed server supports "agentless HDD monitoring".

7.11 System Event Log and Internal Event Log

The *Event Log* entry in the navigation area contains the links to the pages for viewing and configuring the IPMI event log (system event log, SEL) and the iRMC internal event log. An additional page allows you to configure syslog forwarding which forwards the entries of the SEL and/or the internal event log to dedicated syslog servers. The following pages are available:

– "System Event Log Content - Show information on the SEL and the SEL entries" on page 232.

  The internal event log contains entries providing information on audit events (logon events, AVR connection events, etc.) and additional information (e.g. IPv6 related information and LDAP user names).

– "Internal Event Log - Show information on the internal event log and the associated entries" on page 235.

  The IPMI SEL contains entries providing information on events like operating system boots / shutdowns, fan failures, and iRMC firmware flashes.

– "System Event Log Configuration - Configure IPMI SEL and internal event log" on page 238.

– "Syslog Configuration - configure syslog forwarding for SEL and internal event log" on page 241.

Colored icons are assigned to the various event / error categories to improve clarity:

	Critical
	Major
	Minor
	Informational
	Customer Self Service (CSS) event

Table 8: System event log / internal event log content - error categories

7.11.1 System Event Log Content - Show information on the SEL and the SEL entries

The *System Event Log Content* page provides information on the IPMI SEL and displays the SEL entries. The IPMI SEL contains entries providing information on events like operating system boots / shutdowns, fan failures, and iRMC firmware flashes.

The *CSS Event* column indicates for each of the events whether the event was triggered by a CSS (**C**ustomer **S**elf **S**ervice) component.

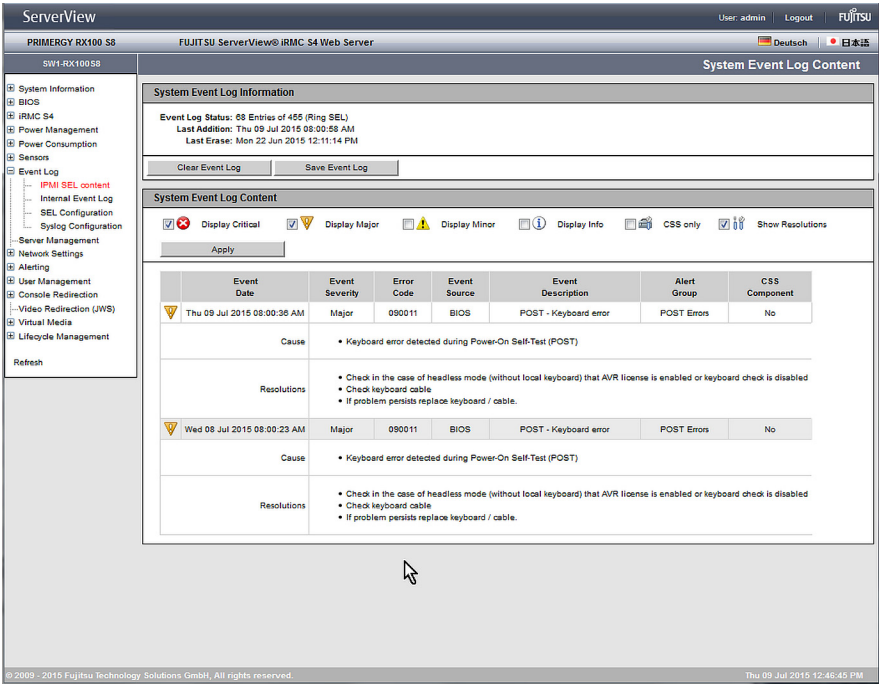


Figure 136: System Event Log Content page

System Event Log Information

The *System Event Log Information* group informs you of the number of entries in the IPMI SEL. It also indicates the time when the last entries were added or deleted.

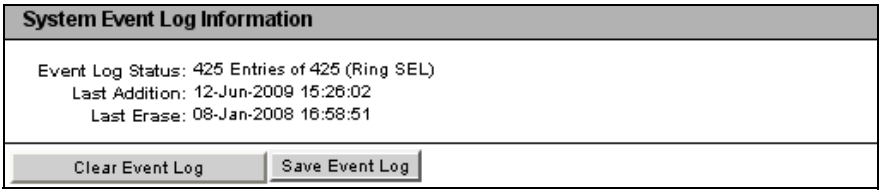

System Event Log Information
Event Log Status: 425 Entries of 425 (Ring SEL)
Last Addition: 12-Jun-2009 15:26:02
Last Erase: 08-Jan-2008 16:58:51
Clear Event Log
Save Event Log

Figure 137: System Event Log Content page, System Event Log Information

Clear Event Log

Clears all entries from the IPMI SEL.

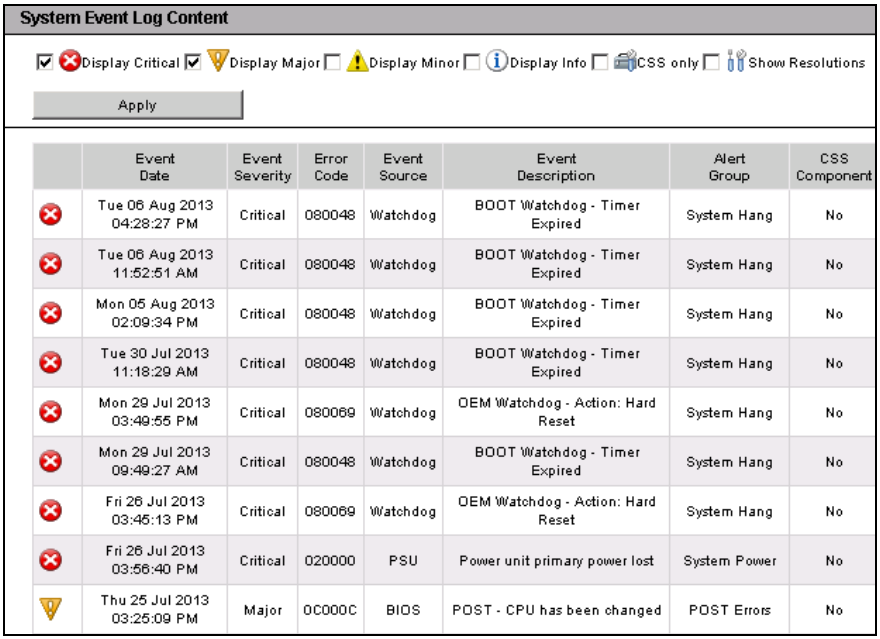
Save Event Log

Downloads the file *iRMC S4_EventLog.sel*, which contains the IPMI SEL entries.

System Event Log Content

The *System Event Log Content* group displays the SEL entries filtered by severity class.

You can modify the filter criteria for the duration of the current session in the *System Event Log Content* group. However, the settings you make here are only valid until the next logout. After that, the default settings apply again.



	Event Date	Event Severity	Error Code	Event Source	Event Description	Alert Group	CSS Component
	Tue 06 Aug 2013 04:28:27 PM	Critical	080048	Watchdog	BOOT Watchdog - Timer Expired	System Hang	No
	Tue 06 Aug 2013 11:52:51 AM	Critical	080048	Watchdog	BOOT Watchdog - Timer Expired	System Hang	No
	Mon 05 Aug 2013 02:09:34 PM	Critical	080048	Watchdog	BOOT Watchdog - Timer Expired	System Hang	No
	Tue 30 Jul 2013 11:18:29 AM	Critical	080048	Watchdog	BOOT Watchdog - Timer Expired	System Hang	No
	Mon 29 Jul 2013 03:49:55 PM	Critical	080069	Watchdog	OEM Watchdog - Action: Hard Reset	System Hang	No
	Mon 29 Jul 2013 09:49:27 AM	Critical	080048	Watchdog	BOOT Watchdog - Timer Expired	System Hang	No
	Fri 26 Jul 2013 03:45:13 PM	Critical	080069	Watchdog	OEM Watchdog - Action: Hard Reset	System Hang	No
	Fri 26 Jul 2013 03:56:40 PM	Critical	020000	PSU	Power unit primary power lost	System Power	No
	Thu 25 Jul 2013 03:25:09 PM	Major	0C000C	BIOS	POST - CPU has been changed	POST Errors	No

Figure 138: System Event Log Content page, System Event Log Content

Display Critical, *Display Major*, *Display Minor*, *Display Info*, *CSS only*
: If you wish, you can choose one or more severity levels other than the default values here.

Show Resolutions
: If you choose this option, a proposal for solution will be displayed for each SEL entry of severity level *Critical* or *Major*.

► Click *Apply* to activate your settings for the duration of the current session.

7.11.2 Internal Event Log - Show information on the internal event log and the associated entries

The *Internal Event Log Information* page provides information on the internal event log and displays the associated entries. The internal event log comprises audit events (login events, AVR connection events, etc.) and additional information (e.g. IPv6 related information and LDAP user names).

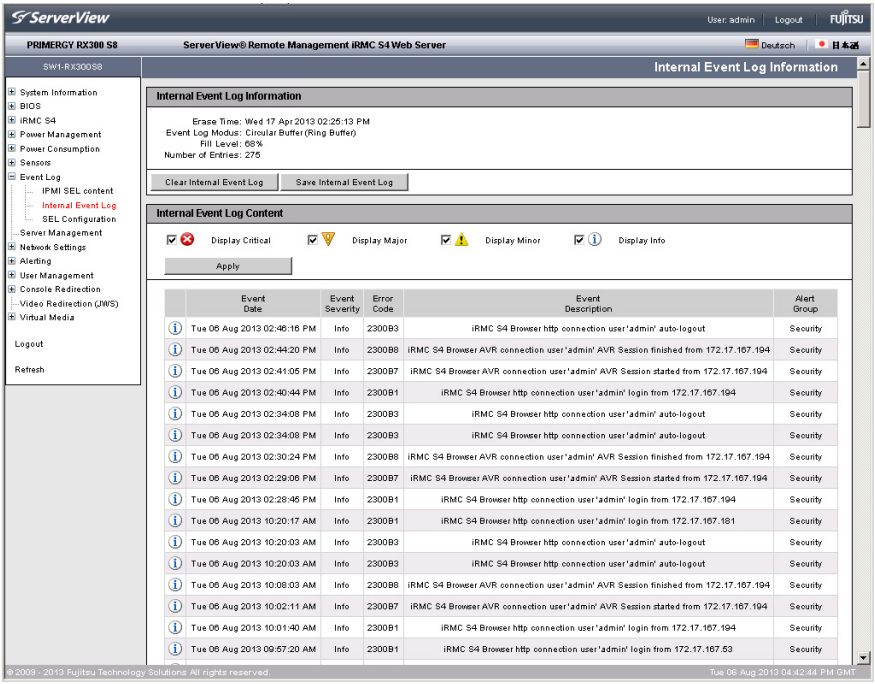

ServerView
User: admin
Logout
FUJITSU
PRIMERGY RX300 S8
ServerView® Remote Management iRMC S4 Web Server
Deutsch
SW1-RX300S8
Internal Event Log Information
System Information
BIOS
iRMC S4
Power Management
Power Consumption
Sensors
Event Log
IPMI SEL content
Internal Event Log
SEL Configuration
Server Management
Network Settings
Alerting
User Management
Console Redirection
Video Redirection (JWS)
Virtual Media
Logout
Refresh
Internal Event Log Information
Erase Time: Wed 17 Apr 2013 02:25:13 PM
Event Log Modus: Circular Buffer (Ring Buffer)
Fill Level: 68%
Number of Entries: 275
Clear Internal Event Log
Save Internal Event Log
Internal Event Log Content
Display Critical
Display Major
Display Minor
Display Info
Apply
Event Date
Event Severity
Error Code
Event Description
Alert Group
Tue 06 Aug 2013 02:46:16 PM Info 2300B3 iRMC S4 Browser http connection user 'admin' auto-logout Security
Tue 06 Aug 2013 02:44:20 PM Info 2300B8 iRMC S4 Browser AVR connection user 'admin' AVR Session finished from 172.17.167.194 Security
Tue 06 Aug 2013 02:41:05 PM Info 2300B7 iRMC S4 Browser AVR connection user 'admin' AVR Session started from 172.17.167.194 Security
Tue 06 Aug 2013 02:40:44 PM Info 2300B1 iRMC S4 Browser http connection user 'admin' login from 172.17.167.194 Security
Tue 06 Aug 2013 02:34:08 PM Info 2300B3 iRMC S4 Browser http connection user 'admin' auto-logout Security
Tue 06 Aug 2013 02:34:08 PM Info 2300B3 iRMC S4 Browser http connection user 'admin' auto-logout Security
Tue 06 Aug 2013 02:30:24 PM Info 2300B8 iRMC S4 Browser AVR connection user 'admin' AVR Session finished from 172.17.167.194 Security
Tue 06 Aug 2013 02:29:06 PM Info 2300B7 iRMC S4 Browser AVR connection user 'admin' AVR Session started from 172.17.167.194 Security
Tue 06 Aug 2013 02:28:45 PM Info 2300B1 iRMC S4 Browser http connection user 'admin' login from 172.17.167.194 Security
Tue 06 Aug 2013 10:20:17 AM Info 2300B1 iRMC S4 Browser http connection user 'admin' login from 172.17.167.181 Security
Tue 06 Aug 2013 10:20:03 AM Info 2300B3 iRMC S4 Browser http connection user 'admin' auto-logout Security
Tue 06 Aug 2013 10:20:03 AM Info 2300B3 iRMC S4 Browser http connection user 'admin' auto-logout Security
Tue 06 Aug 2013 10:08:03 AM Info 2300B8 iRMC S4 Browser AVR connection user 'admin' AVR Session finished from 172.17.167.194 Security
Tue 06 Aug 2013 10:02:11 AM Info 2300B7 iRMC S4 Browser AVR connection user 'admin' AVR Session started from 172.17.167.194 Security
Tue 06 Aug 2013 10:01:40 AM Info 2300B1 iRMC S4 Browser http connection user 'admin' login from 172.17.167.194 Security
Tue 06 Aug 2013 09:57:20 AM Info 2300B1 iRMC S4 Browser http connection user 'admin' login from 172.17.167.53 Security
© 2009 - 2013 Fujitsu Technology Solutions All rights reserved.
Tue 06 Aug 2013 04:42:44 PM GMT

Figure 139: InternalEvent Log Content page

Internal Event Log Information

The *Internal Event Log Information* group informs you of the number of entries in the internal event log. It also indicates the time when the last entries were added or deleted.

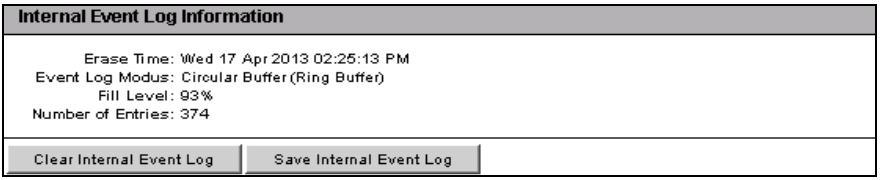

Internal Event Log Information
Erase Time: Wed 17 Apr 2013 02:25:13 PM
Event Log Modus: Circular Buffer (Ring Buffer)
Fill Level: 93%
Number of Entries: 374
Clear Internal Event Log
Save Internal Event Log

Figure 140: System Event Log Content page, System Event Log Information

Clear Internal Event Log

Click *Clear Internal Event Log* to clear all the entries in the internal event log.

Save Internal Event Log

After you have clicked *Save Internal Event Log*, the iRMC allows you to download the file *iRMC S4_InternalEventLog.sel* which contains the entries of the internal event log.

Internal Event Log Content

The *Internal Event Log Content* group displays the internal event log entries filtered by severity class.

You can modify the filter criteria for the duration of the current session in the *Internal Event Log Content* group. However, the settings you make here are only valid until the next logout. After that, the default settings apply again.

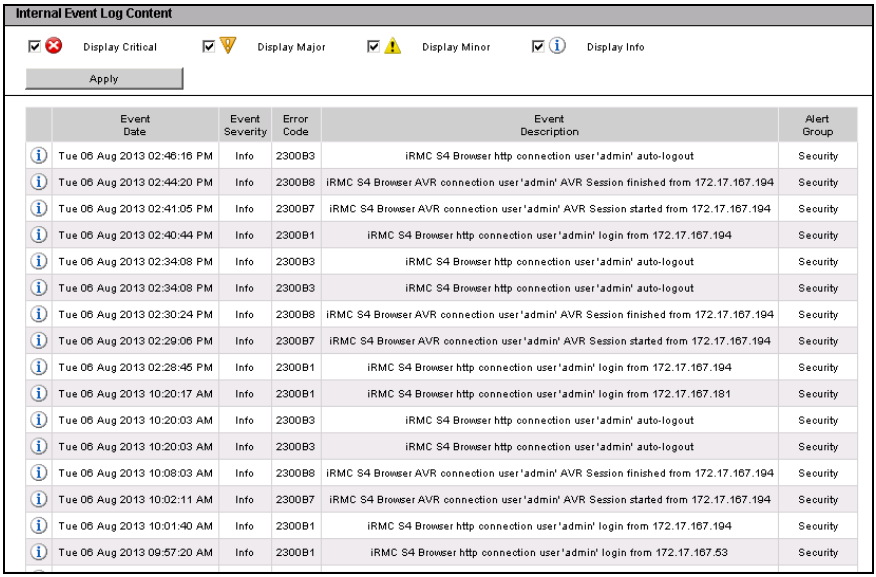

Internal Event Log Content
Display Critical
Display Major
Display Minor
Display Info
Apply
Event Date
Event Severity
Error Code
Event Description
Alert Group
Tue 06 Aug 2013 02:46:16 PM Info 2300B3 iRMC S4 Browser http connection user 'admin' auto-logout Security
Tue 06 Aug 2013 02:44:20 PM Info 2300B8 iRMC S4 Browser AVR connection user 'admin' AVR Session finished from 172.17.167.194 Security
Tue 06 Aug 2013 02:41:05 PM Info 2300B7 iRMC S4 Browser AVR connection user 'admin' AVR Session started from 172.17.167.194 Security
Tue 06 Aug 2013 02:40:44 PM Info 2300B1 iRMC S4 Browser http connection user 'admin' login from 172.17.167.194 Security
Tue 06 Aug 2013 02:34:08 PM Info 2300B3 iRMC S4 Browser http connection user 'admin' auto-logout Security
Tue 06 Aug 2013 02:34:08 PM Info 2300B3 iRMC S4 Browser http connection user 'admin' auto-logout Security
Tue 06 Aug 2013 02:30:24 PM Info 2300B8 iRMC S4 Browser AVR connection user 'admin' AVR Session finished from 172.17.167.194 Security
Tue 06 Aug 2013 02:29:06 PM Info 2300B7 iRMC S4 Browser AVR connection user 'admin' AVR Session started from 172.17.167.194 Security
Tue 06 Aug 2013 02:28:45 PM Info 2300B1 iRMC S4 Browser http connection user 'admin' login from 172.17.167.194 Security
Tue 06 Aug 2013 10:20:17 AM Info 2300B1 iRMC S4 Browser http connection user 'admin' login from 172.17.167.181 Security
Tue 06 Aug 2013 10:20:03 AM Info 2300B3 iRMC S4 Browser http connection user 'admin' auto-logout Security
Tue 06 Aug 2013 10:20:03 AM Info 2300B3 iRMC S4 Browser http connection user 'admin' auto-logout Security
Tue 06 Aug 2013 10:08:03 AM Info 2300B8 iRMC S4 Browser AVR connection user 'admin' AVR Session finished from 172.17.167.194 Security
Tue 06 Aug 2013 10:02:11 AM Info 2300B7 iRMC S4 Browser AVR connection user 'admin' AVR Session started from 172.17.167.194 Security
Tue 06 Aug 2013 10:01:40 AM Info 2300B1 iRMC S4 Browser http connection user 'admin' login from 172.17.167.194 Security
Tue 06 Aug 2013 09:57:20 AM Info 2300B1 iRMC S4 Browser http connection user 'admin' login from 172.17.167.53 Security

Figure 141: System Event Log Content page, System Event Log Content

Display Critical, *Display Major*, *Display Minor*, *Display Info*
If you wish, you can choose one or more severity levels other than the default values here.

► Click *Apply* to activate your settings for the duration of the current session.

7.11.3 System Event Log Configuration - Configure IPMI SEL and internal event log

On the *System Event Log Configuration* page, you can configure the IPMI system event log (SEL) and the internal event log.

You can configure for each of the event logs

– the entries which are displayed by default on the *System Event Log Content* page (see page 232) and on the *Internal Event Log Information* page (see page 235), respectively.

– whether IPMI SEL and internal event log are organized as a ring buffer or a linear buffer.

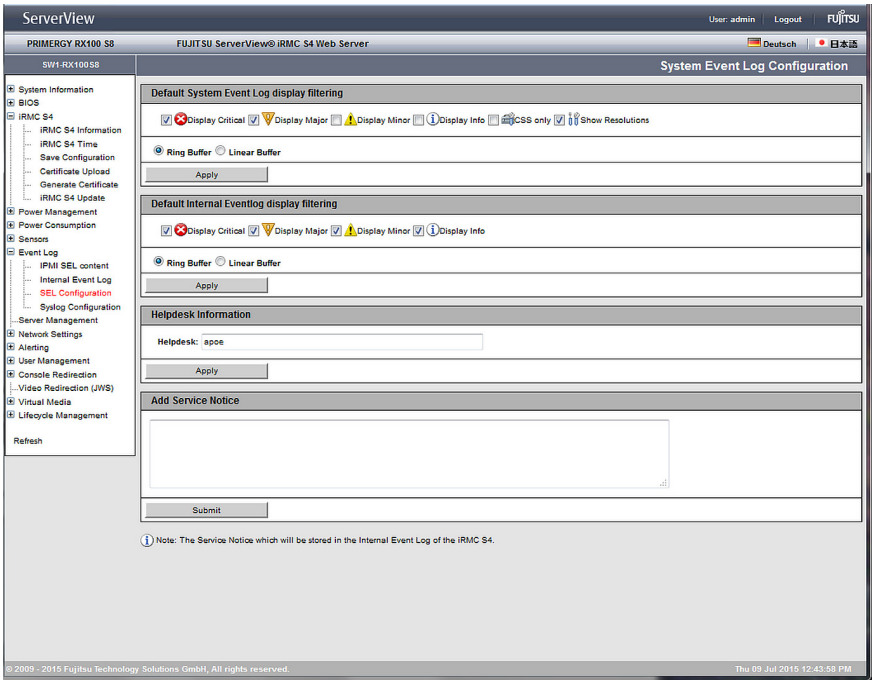


Figure 142: Event Log Configuration page

Default System Event Log display filtering

In this group you can configure which entries are displayed by default.

Display Critical, *Display Major*, *Display Minor*, *Display Info*, *CSS only*
Here you select one or more severity levels for which event log entries should be displayed by default on the on the *System Event Log Content* page (see page 232).

Show Resolutions
If you choose this option, the cause of the entry and a proposal for resolution will be displayed for each SEL entry of severity level *Critical*, *Major*, or *Minor*.

Ring Buffer
The event log is organized as a ring buffer.

Linear Buffer
The event log is organized as a linear buffer. When the linear event log has been completely filled, it is not possible to add any further entries.

Apply
Activates your settings.

Default Internal Eventlog display filtering

Display Critical, *Display Major*, *Display Minor*, *Display Info*
Here you select one or more severity levels for which event log entries should be displayed by default on the on the *Internal Event Log Content* page (see page 235).

Ring Buffer
The event log is organized as a ring buffer.

Linear Buffer
The event log is organized as a linear buffer. When the linear event log has been completely filled, it is not possible to add any further entries

Apply
Activates your settings.

Helpdesk Information

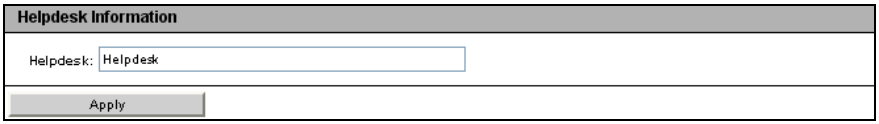


Figure 143: Helpdesk Information

Help desk

String used to display the Help Desk

Apply

Activates your settings.

Add Service Notice

In the text field of the *Add Service Notice* group you can enter a service notice which will be stored in the Internal Event Log of the iRMC.

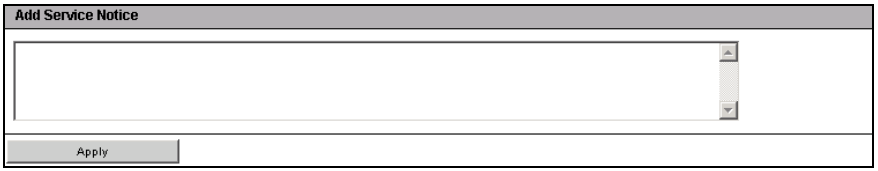


Figure 144: Helpdesk Information

Apply

Activates your settings.

7.11.4 Syslog Configuration - configure syslog forwarding for SEL and internal event log

On the *Syslog Configuration* page, you can configure syslog forwarding which forwards the events (entries) of SEL and/or the internal event log to dedicated syslog servers.

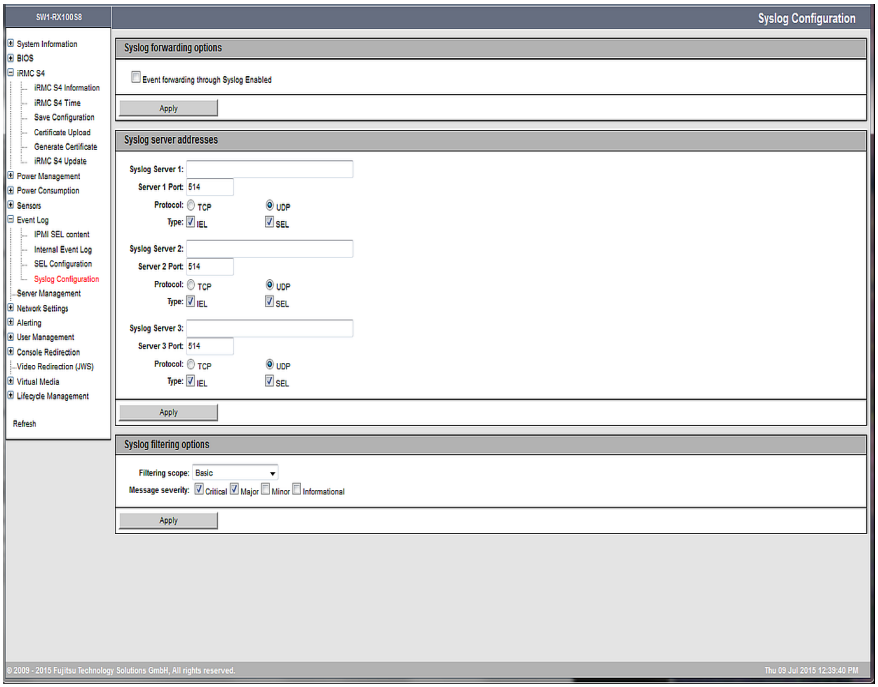


Figure 145: Syslog Configuration page

Syslog forwarding options

The *Syslog forwarding options* group allows you to enable/disable syslog forwarding.

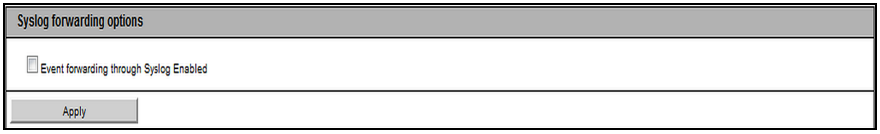


Figure 146: Syslog Configuration page - Syslog Forwarding Options

Event forwarding through Syslog Enabled
Enables/disables the forwarding of the events of SEL and/or internal event log to up to three syslog server configured below.

Syslog server addresses

The *Syslog server addresses* group allows you to configure the parameters for up to three syslog servers.

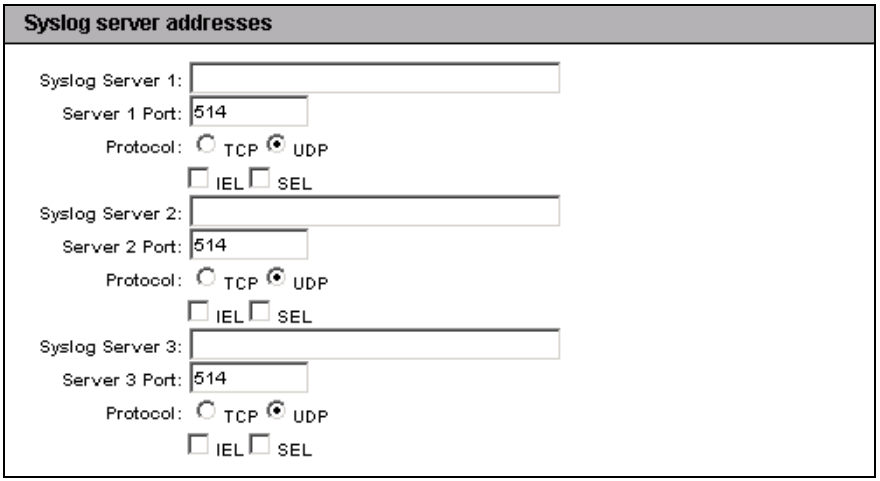


Figure 147: Syslog Configuration page - Syslog server addresses

Server 1 / 2 / 3
IP address or DNS name of the respective syslog Server.

Server 1 / 2 / 3 Port
Input port at which syslog Server 1 / 2 / 3 receives the forwarded events.

Protocol

Protocol (TCP or UDP) used for transferring the events to the corresponding syslog server.

IEL

Events of the internal event log are to be forwarded to the corresponding syslog server.

SEL

Events of the System Event Log (SEL) are to be forwarded to the corresponding syslog server.

Syslog filtering options

The *Syslog filtering options* group allows you to filter the forwarded events by various criteria.

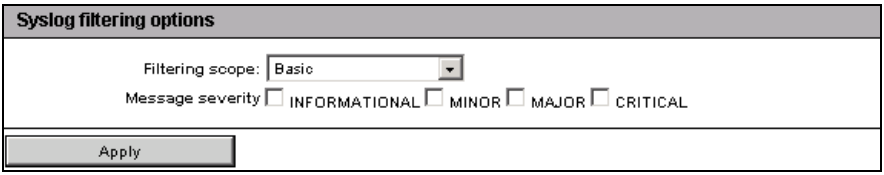


Figure 148: Syslog Configuration page - Syslog filtering options - Basic settings

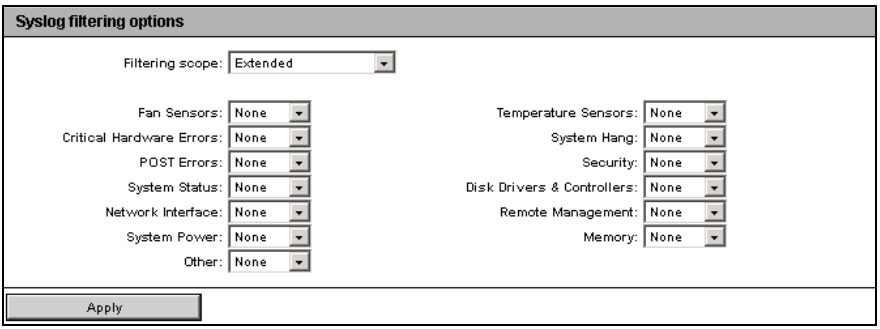


Figure 149: Syslog Configuration page - Syslog filtering options - Extended settings

Filtering scope

Determines the filtering granularity.

Basic

Basic filtering which does not distinguish between the individual server components, special events, etc.

Message severity INFORMATIONAL, MINOR, MAJOR, CRITICAL

Here you select one or more severity levels for which event log entries should be forwarded to *syslog* (see page 235).

Extended

Filtering can be configured separately for each the following component-level or system-specific event types: *Fan Sensors*, *Temperature Sensors*, *Critical Hardware Errors*, *System Hang*, *POST Errors*, *Security*, *System Status*, *Disk Drivers & Controllers*, *Network Interface*, *Remote Management*, *System Power*, *Memory*, and *Other*.

For each event type, the following options are available:

None

No event is forwarded.

Critical

Only events with status *Critical* are forwarded.

Warning

Only events with status *Critical* or *Warning* are forwarded.

All

All events are forwarded.

► Click *Apply* to activate your settings.

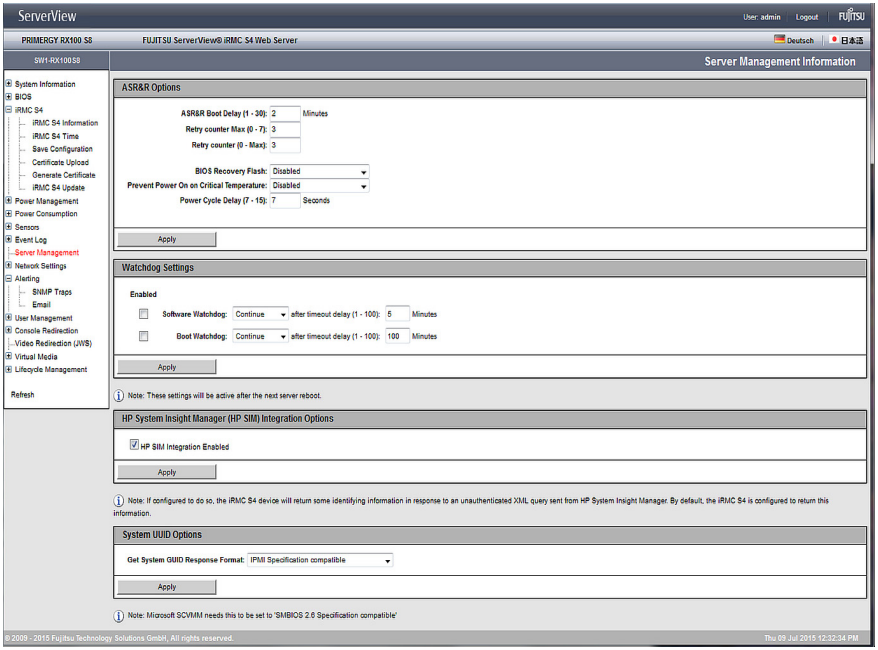
7.12 Server Management Information - Configuring the server settings

The *Server Management Information* page allows you to configure the following settings on the server:

– ASR&R (automatic server reconfiguration and restart) settings for the server (see page 246)

– Watchdog settings (see page 247)

– Format in which the iRMC device will return UUID information (see page 249)


ServerView
User: admin
Logout
FUJITSU
PRIMERGY RX100 S8
FUJITSU ServerView® iRMC S4 Web Server
Deutsch
日本語
SW1-RX100S8
Server Management Information
System Information
BIOS
iRMC S4
iRMC S4 Information
iRMC S4 Time
Save Configuration
Certificate Upload
Generate Certificate
iRMC S4 Update
Power Management
Power Consumption
Sensors
Event Log
Server Management
Network Settings
Alarting
SNMP Traps
Email
User Management
Console Redirection
Video Redirection (JWS)
Virtual Media
Lifecycle Management
Refresh
ASR&R Options
ASR&R Boot Delay (1 - 30): 2 Minutes
Retry counter Max (0 - 7): 3
Retry counter (0 - Max): 3
BIOS Recovery Flash: Disabled
Prevent Power On on Critical Temperature: Disabled
Power Cycle Delay (7 - 15): 7 Seconds
Apply
Watchdog Settings
Enabled
Software Watchdog: Continue after timeout delay (1 - 100): 5 Minutes
Boot Watchdog: Continue after timeout delay (1 - 100): 100 Minutes
Apply
Note: These settings will be active after the next server reboot.
HP System Insight Manager (HP SIM) Integration Options
HP SIM Integration Enabled
Apply
Note: If configured to do so, the iRMC S4 device will return some identifying information in response to an unauthenticated XML query sent from HP System Insight Manager. By default, the iRMC S4 is configured to return this information.
System UUID Options
Get System GUID Response Format: IPMI Specification compatible
Apply
Note: Microsoft SCVMM needs this to be set to 'SMBIOS 2.6 Specification compatible'
© 2009 - 2015 Fujitsu Technology Solutions GmbH, All rights reserved.
Thu 09 Jul 2015 12:32:34 PM
Figure 150: Server Management Information page

ASR&R Options - Configure ASR&R settings

The *ASR&R Options* group allows you to configure the ASR&R (automatic server reconfiguration and restart) settings for the server.

The settings made on the *ASR&R Options* group become active the next time the managed server is started.

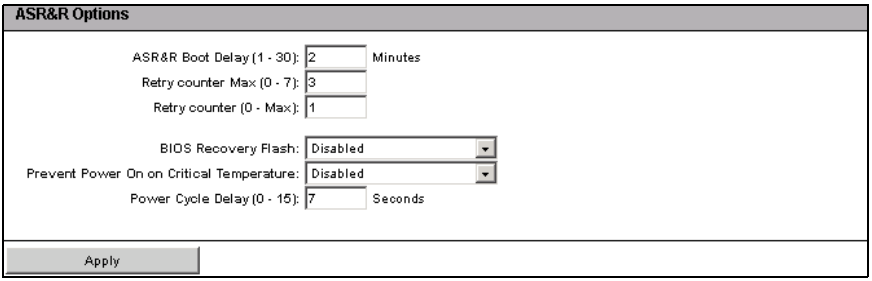


Figure 151: Server Management Information page, ASR&R Options

ASR&R Boot Delay (1 - 30)

Delay time (in minutes) before the server restarts (1-30 minutes).

Retry counter Max (0 - 7)

Maximum number of restart attempts that should be permitted for the server after a critical error (up to 7).

Retry counter (0 - Max)

Number of restart attempts that a server should attempt after a critical error (maximum value is the value set under *Retry counter Max*).

BIOS Recovery Flash

Enables/disables the BIOS recovery flash bit:

- *Enabled*
  The next time the system is booted, the BIOS is automatically flashed.
- *Disabled*
  The next time the system is booted, the BIOS is not automatically flashed.

The *Enabled* setting is of value if the operating system no longer boots after the firmware has been updated. A BIOS recovery flash is then performed automatically the next time the system is booted from the DOS floppy (or a DOS floppy image).

After a BIOS recovery flash has been performed successfully, reset the BIOS Recovery Flash bit to *disabled*.

Prevent Power On on Critical Temperature

If enabled, prevents the server from being powered on in case of critical temperature occurrence.

Power Cycle Delay (0 - 15)

Time (in seconds) between powering down and powering up during a power cycle.

- Click *Apply* to save your settings.

  The configured settings are saved and the actions which have been configured are performed in the appropriate circumstances.

Watchdog Settings - Configure software watchdog and boot watchdog

The *Watchdog Settings* group allows you configure the software watchdog and the boot watchdog.

The settings made on the *ASR&R Options* group become active the next time the managed server is started.

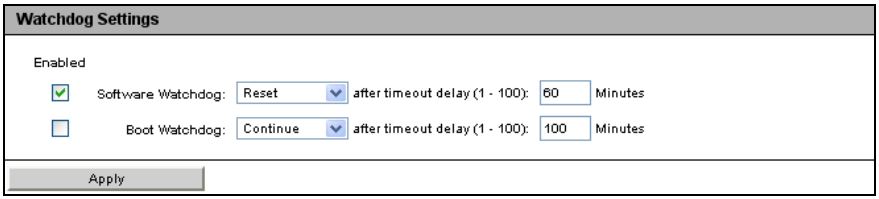


Figure 152: Server Management Information page - Watchdog Settings

The **software** watchdog monitors the activities of systems using the ServerView agents. The software watchdog is activated when the ServerView agents and the operating system have been completely initialized.
The ServerView agents contact the iRMC at defined intervals.

If no more messages are received from a ServerView agent, it is assumed that the system is no longer functioning correctly.
You can specify an action to be performed if this happens.

The **boot watchdog** monitors the phase between startup of the system and the time at which the ServerView agents become available.
If the ServerView agents do not establish a connection to the iRMC of the server within a specified time, it is assumed that the boot process has not been successful.
You can specify an action to be performed if this happens.

Proceed as follows:

- Check or uncheck the option(s) under *Enabled* for the *Software Watchdog* and/or *Boot Watchdog*.
- If you have activated either of these options, you can configure the following settings after *Software Watchdog* and/or *Boot Watchdog*:

  Continue
  No action is performed when the watchdog has expired, i.e. the server continues to run. An entry is made in the event log.

  Reset
  The server management software triggers a system reset.

  Power Cycle
  The server is powered down and immediately powered up again.
- As appropriate, enter the time (in minutes) after which this action is to be performed following *after timeout delay*.

  The boot watchdog must wait until the system has been started. You therefore have to specify a sufficient period for *after timeout delay (1 - 100)*.
- Click *Apply* button.

  The configured settings are saved and the actions which have been configured are performed in the appropriate circumstances.

HP System Insight Manager (HP SIM) Integration Options

In this group you enable or disable HP SIM integration.

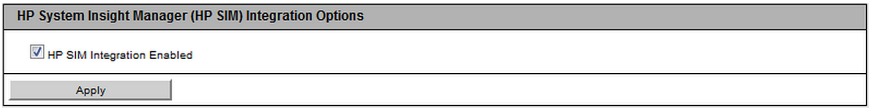


Figure 153: Page Server Management Information -

SIM Integration Enabled
Enables or disables HP SIM integration.

► Click *Apply* to activate your settings.

System UUID Options

The *System UUID Options* group allows you to configure the format in which the iRMC device will return UUID information.

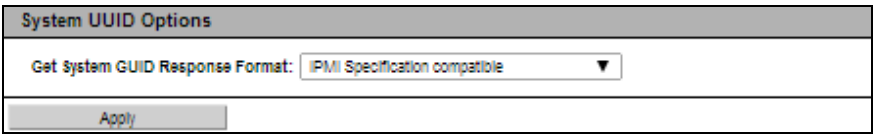


Figure 154: Page Server Management Information - System UUID Options

Get System UUID Response Format
Format in which the iRMC device will return UUID information.

IPMI Specification compatible
System GUID Response Format is compatible to the IPMI Specification.

SMBIOS 2.6 Specification compatible
System GUID Response Format is compatible to the System Management BIOS (SMBIOS) Reference Specification.

► Click *Apply* to activate your settings.

7.13 Network Settings - Configure the LAN parameters

The *Network Settings* entry brings together the links to the pages you use to configure the LAN parameters of the iRMC:

- "Network Interface Settings - Configure Ethernet settings on the iRMC" on page 251.
- "Ports and Network Services - Configuring ports and network services" on page 258.
- "Proxy Settings - Configuring proxy settings" on page 262.
- "DNS Configuration - Configuring DNS for the iRMC" on page 264.
- "SNMP Generic Configuration" on page 268.

7.13.1 Network Interface Settings - Configure Ethernet settings on the iRMC

The *Network Interface* page allows you to view and change the Ethernet settings for the iRMC.

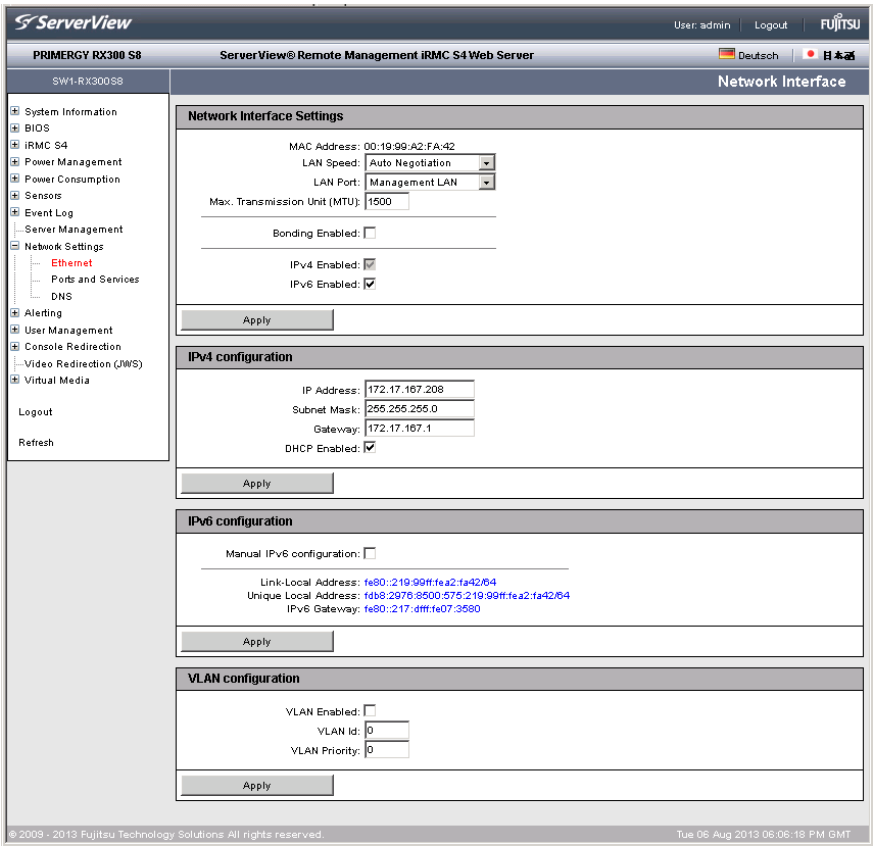


Figure 155: Network Interface page

CAUTION!

Contact the network administrator responsible for the system before you change the Ethernet settings.

If you make illegal Ethernet settings for the iRMC, you will only be able to access the iRMC using special configuration software, the serial interface or via the BIOS.

Only users with the *Configure iRMC S4 Settings* permission are allowed to edit Ethernet settings (see chapter "User management for the iRMC S4" on page 59).

Network Interface Settings

MAC Address

The MAC address of the iRMC is displayed here.

LAN Speed

This option is disabled/ not visible if network bonding is enabled.

LAN speed. The following options are available:

- Auto Negotiation
- 1000 MBit/s Full Duplex (depending on the server hardware)
- 100 MBit/s Full Duplex
- 100 MBit/s Half Duplex
- 10 MBit/s Full Duplex
- 10 MBit/s Half Duplex

If *Auto Negotiation* is selected, the onboard LAN controller assigned to the iRMC autonomously determines the correct transfer speed and duplex method for the network port it is connected to.

Max. Transmission Unit (MTU)

Maximum packet size (in bytes) of the TCP/IP data packages that will be accepted by the TCP/IP connection. (Default: 3000 Bytes).

LAN Port

This option is disabled / not visible if network bonding is enabled.

The LAN interface of the installed system NIC (network interface card) can be set up

– as shared LAN for shared operation with the system

or

– as a service LAN for exclusive use as a management LAN.

Bonding Enabled

Enables / disables network bonding for the iRMC.

Network bonding for the iRMC is designed for redundancy in the event of Ethernet network adapter failures. Thus, iRMC network management traffic is protected from loss of service which occurs due to failure of a single physical link.

The iRMC only supports the active-backup mode, i. e. one port is active until the link fails, then the other port takes over the MAC and becomes active.

If bonding is enabled, the *Active Port* the *LAN Speed* and *LAN Port* options are disabled / not visible.

For iRMC network bonding, the involved LAN switches should be located within the same network. Beyond that, iRMC network bonding does not require a special switch configuration.

Please note:

Even if enabled, Network bonding is suspended when the Front LAN becomes active. The Front LAN port is activated and can be accessed by the predefined IP address 192.168.1.1. In the event this situation occurs, a corresponding note will be displayed in the web interface.

Bonding settings can nevertheless be configured and modified. The settings will be effective once the front LAN is deactivated („link down"), i.e the bonding mode will be activated again depending on the currently configured bonding settings.

The following figure outlines how network bonding works:

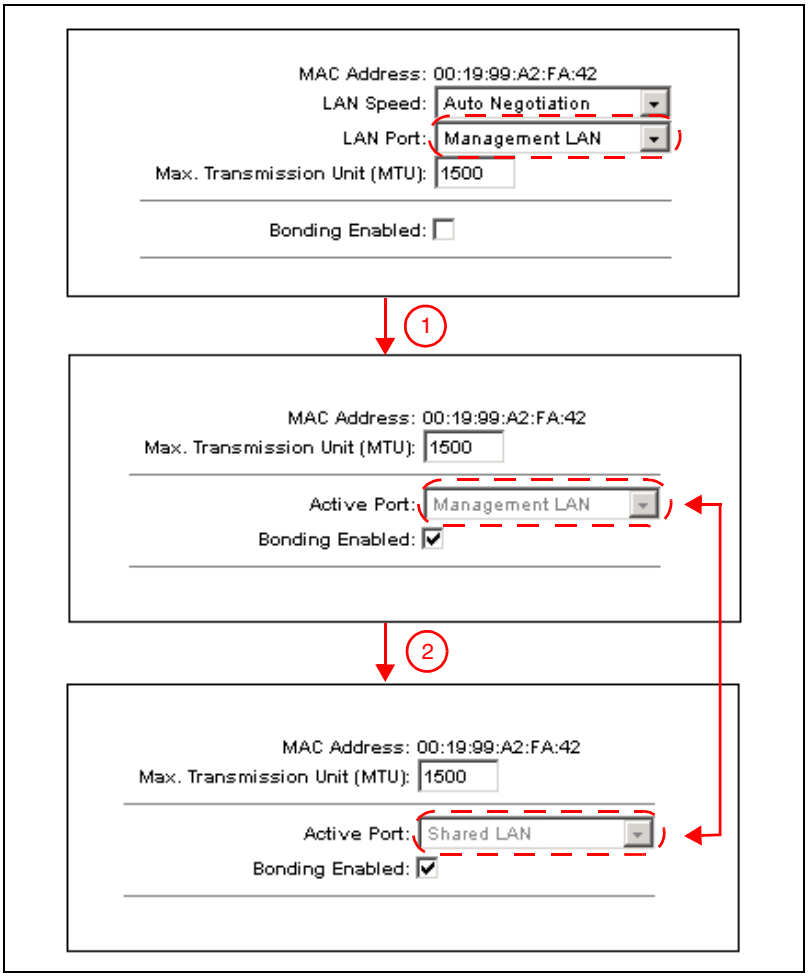


Figure 156: IP bonding enabled

1. Once bonding is activated, the currently used LAN port (here: Management LAN) becomes the active port, which is now displayed in the *Active Port* field. The second LAN port (here: onboard shared LAN) becomes the backup port.
2. If the currently active port (here: Management LAN) fails ("link down"), the second port (here: onboard shared LAN) becomes active.

Restrictions:

Blade servers do not support network bonding mode for the iRMC . They use an automatic failover mechanism between two shared LAN ports to ensure redundant network feature.

IPv4 Enabled

IPv4 addressing is always enabled for the iRMC and cannot be disabled.

IPv6 Enabled

Enables/disables IPv6 addressing for the iRMC. If IPv6 addressing is enabled, the *IPv6 configuration* group will be displayed (see below).

You cannot disable IPv6 addressing if the iRMC is currently accessed via IPv6.

IPv4 configuration

The *IPv4 configuration* group allows you to configure the IPv4 settings for the iRMC.

IP Address

IPv4 address of the iRMC in the LAN. This address is different from the IP address of the managed server.

If you are working with a static address (*DHCP Enable* option not activated) then you can enter this here. Otherwise (if the *DHCP Enable* option is activated), the iRMC only uses the field to display the address.

Subnet Mask

Subnet mask of the iRMC in the LAN.

Gateway

IPv4 address of the default gateway in the LAN.

DHCP Enabled

If you activate this option, the iRMC gets its LAN settings from a DHCP server on the network.

Do not activate the *DHCP* option if no DHCP server is available on the network.
If you activate the *DHCP* option and there is no DHCP server available on the network, the iRMC goes into a search loop (i.e. it continues searching for a DHCP server until it finds one).

The (configured) iRMC can be registered with a DNS server by an appropriately configured DHCP server (see section "DNS Configuration - Configuring DNS for the iRMC" on page 264).

IPv6 configuration

The *IPv6 configuration* group allows you to automatically or manually configure an IPv6 address for the iRMC:

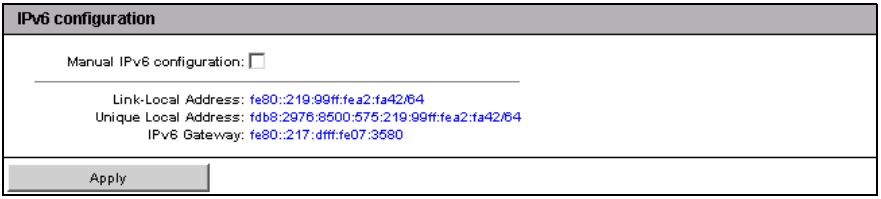


Figure 157: Network Interface page - manual IPv6 configuration disabled

Manual IPv6 configuration

This option is disabled by default

If *Manual IPv6 configuration* is disabled, Stateless Autoconfiguration or Stateful Address Configuration is used to automatically configure a routable IPv6 address for the iRMC:

– Stateless Autoconfiguration:

  Stateless Autoconfiguration uses the *Link Local Address*, which is always assigned automatically to the iRMC, and enables the iRMC to generate its own IPv6 address.

– Stateful Address Configuration

  With Stateful Address Configuration, the iRMC obtains its IPv6 address from a DHCP server.

If you enable the *Manual IPv6 configuration* option, the *IPv6 configuration* group displays additional parameters that allow you to manually configure a routable IPv6 address for the iRMC.

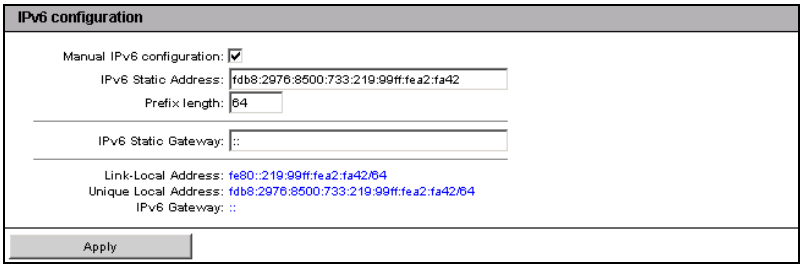


Figure 158: Network Interface page - manual IPv6 configuration

IPv6 Static Address
: Static IPv6 address for the iRMC.

Prefix Length
: Length of the IPv6 prefix.

IPv6 Static Gateway
: Static IPv6 address of the default IPv6 gateway in the LAN.

VLAN Configuration

*VLAN Enable*d
: This option allows you to activate VLAN support for the iRMC.

VLAN Id
: VLAN ID of the virtual network (VLAN) the iRMC belongs to. Permitted value range: 1 ≤ *VLAN Id* ≤ 4094.

VLAN Priority
: VLAN priority (user priority) of the iRMC in the VLAN specified by *VLAN Id*.
Permitted value range: 0 ≤ *VLAN Priority* ≤ 7 (default: 0).

7.13.2 Ports and Network Services - Configuring ports and network services

The *Ports and Network Services* page allows you to view and modify the configuration settings for ports and network services.

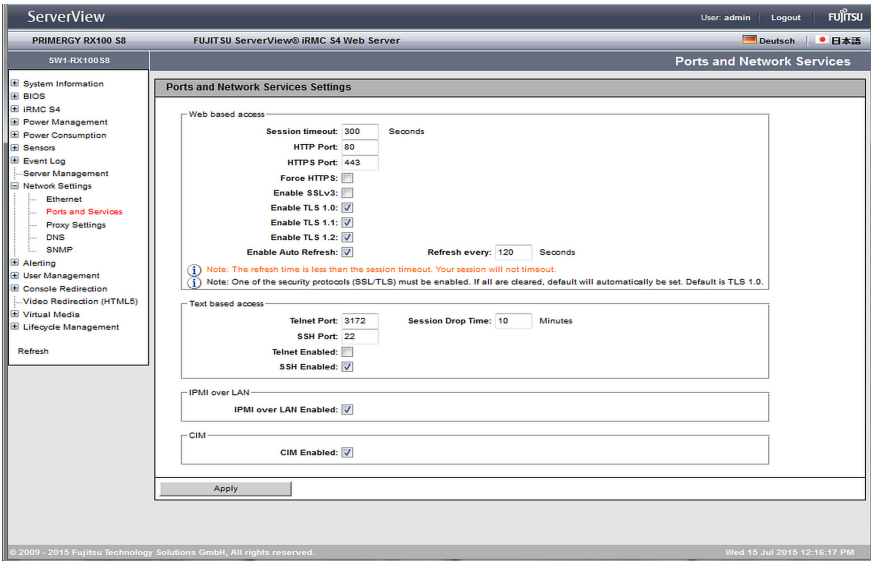


Figure 159: Ports and Network Services page

Configuration is not supported for ports where the input fields are deactivated in the iRMC web interface.

Ports for web-based access

Session Timeout

Period of inactivity (in seconds) after which the session is automatically closed. The login page of the iRMC web interface then appears, and you can log in again as required (see page 122).

> **i** Your session will not automatically be closed if it is inactive when the time specified in *Session Timeout* has elapsed if you enter a value for the refresh interval which is less than the *Session Timeout* in the *Refresh every ... seconds* field.

HTTP Port

HTTP port of the iRMC
Default port number: 80
Configurable: yes
Enabled by default: yes
Communication direction: inbound and outbound

HTTPS Port

HTTPS (HTTP Secure) port of the iRMC
Default port number: 443
Configurable: yes
Enabled by default: yes
Communication direction: inbound and outbound

Force HTTPS

If you enable the *Force HTTPS* option, users can only establish a secure connection to the iRMC on the HTTPS port specified in the entry field.

If you disable the *Force HTTPS* option, users can establish a non-secure connection to the iRMC on the HTTP port specified in the entry field.

> **i** If the SSL certificate has expired, a message to this effect is issued in the browser.

Enable SSLv3

Allows an HTTPS session using SSL V3.

Enable TLS 1.0

Allows an HTTPS session using TLS V1.0.

Enable TLS 1.1

Allows an HTTPS session using TLS V1.1.

Enable TLS 1.2

Allows an HTTPS session using TLS V1.2.

Enable Auto Refresh

If you activate this option, the contents of the iRMC web interface are automatically refreshed periodically. Specify the refresh interval in the *Refresh every ... seconds* field.

Reresh every ... seconds

Length (in seconds) of the interval for automatically refreshing the iRMC web interface.

If you enter a value for the refresh interval which is less than the *Session Timeout* (see page 259), your session will not automatically be closed when the time specified in *Session Timeout* has elapsed in the event of inactivity.

Ports for text-based access

Telnet Port

Telnet port of the iRMC
Default port number: 3172
Configurable: yes
Enabled by default: no
Communication direction: inbound and outbound

Session Drop Time

Period of inactivity (in minutes) after which a Telnet / SSH connection is automatically cleared.

SSH Port

SSH (Secure Shell) port of the iRMC
Default port number: 22
Configurable: yes
Enabled by default: yes
Communication direction: inbound and outbound

Telnet Enabled

If you enable the *Telnet Enabled* option, users can establish a connection to the iRMC on the Telnet port specified in the corresponding entry field.

SSH Enabled

If you enable the *SSH Enabled* option, users can establish a connection to the iRMC on the SSH port specified in the corresponding entry field.

IPMI over LAN

“IPMI-over-LAN” is the specification of the LAN interface in the IPMI standard. This specification stipulates how IPMI messages can be sent to or from the iRMC - encapsuCIM

lated in RMCP (Remote Management Control Protocol) data packets. These RMCP data packets are transferred via an Ethernet LAN connection using UDP under IPv4 or IPv6.

RCMP supports the management of system statuses in systems without running operating system.

The interface for such a connection is provided on the integrated LAN controller of the iRMC.

IPMI over LAN enabled

This option is enabled by default.
Allows you to disable the IPMI over LAN feature.

CIM

The Common Information Model (CIM) is a standardized, hierarchical, object-oriented data model which ensures a uniform representation of the managed resources.

CIM enabled

This option is enabled by default.
Allows you to disable the CIM protocol.

- Click *Apply* to store the configured settings.

7.13.3 Proxy Settings - Configuring proxy settings

The *Proxy Settings* page allows you to configure the settings for a proxy server which can be optionally used for establishing the connection to an update repository (see section "Update Settings - Configuring general eLCM update settings" on page 340) and/or for establishing an AIS Connect connection (see section "AIS Connect - Configuring and using AIS Connect" on page 142).

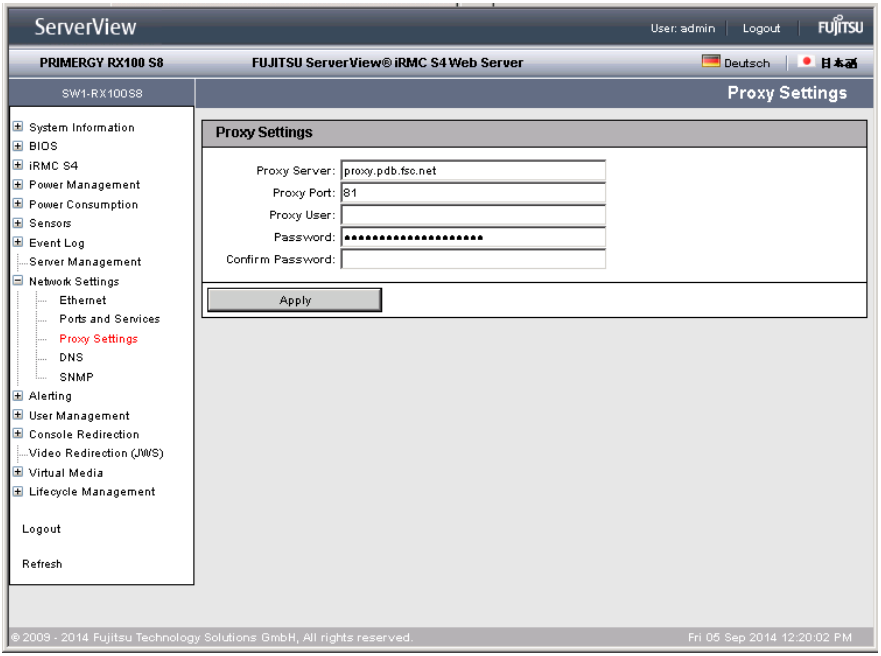


Figure 160: Proxy Settings page

Proxy Server

IP address of the Proxy server

> **i** You can activate the Domain Name System (DNS) for the iRMC (see "DNS Configuration - Configuring DNS for the iRMC" on page 264). You can then use a symbolic name instead of the IP address.

Proxy Port

Port of the proxy service.
Default port number: 81

Proxy User
User name for authentication on the proxy server.

Password
Password for authentication on the proxy server.

Confirm Password
Confirm the password entered.

► Click *Apply* to activate your settings.

7.13.4 DNS Configuration - Configuring DNS for the iRMC

The *DNS Configuration* page allows you to activate the Domain Name System (DNS) for the iRMC and to configure a host name for the iRMC.

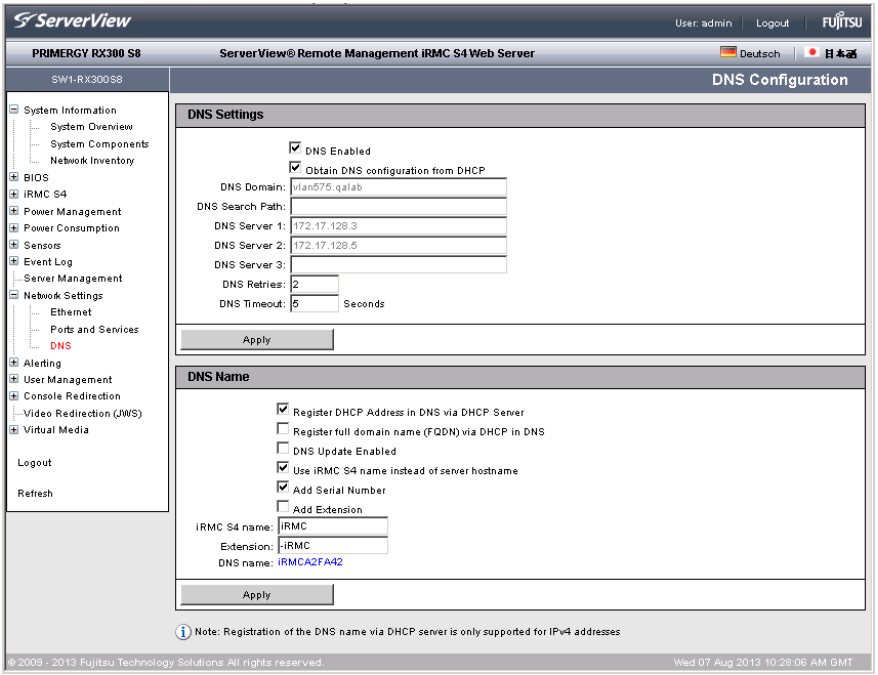


Figure 161: DNS Configuration page

DNS Settings

The *DNS Settings* group allows you to activate the Domain Name System (DNS) for the iRMC. This makes it possible to use symbolic DNS names instead of IP addresses for configuring the iRMC.

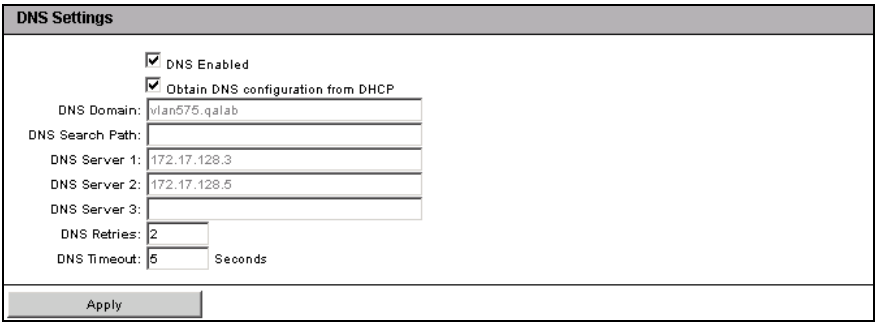


Figure 162: DNS Configuration page - DNS Settings

DNS Enabled

Enables/disables DNS for the iRMC.

Obtain DNS configuration from DHCP

If you activate this option, the IP addresses of the DNS servers are obtained automatically from the DHCP server.
In this event, up to three DNS servers are supported.

If you do not enable this setting, you can enter up to three DNS server addresses manually under *DNS-Server 1* - *DNS-Server 3*.

DNS Domain

If the option *Obtain DNS configuration from DHCP* is disabled, specify the name of the default domain for requests to the DNS server(s).

DNS Search Path

List of (partially qualified) domain names, separated by one or more space characters. The DNS search list can have a maximum length of 256 characters. The DNS Search Path field is used to specify the domains to be searched when looking up a host name that does not have a domain-name component.

DNS Server 1 .. 3

If the *Obtain DNS configuration from DHCP* option is disabled, you can enter the names of up to five DNS servers here.

DNS Retries

Number of DNS retries.

DNS Timeout

Timeout (in seconds) for a DNS response.

► Click *Apply* to store the configured settings.

DNS Name

The *DNS Name* group allows you to configure a host name for the iRMC and thus use “dynamic DNS”. Dynamic DNS allows DHCP servers to autonomously pass on the IP address and system name of a network component to DNS servers to facilitate identification.

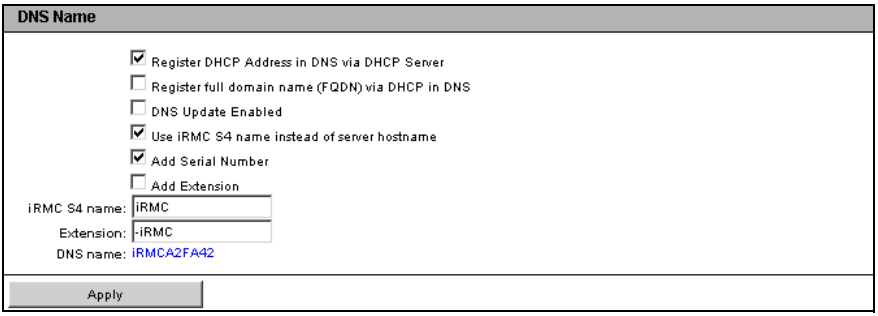

DNS Name
Register DHCP Address in DNS via DHCP Server
Register full domain name (FQDN) via DHCP in DNS
DNS Update Enabled
Use iRMC S4 name instead of server hostname
Add Serial Number
Add Extension
iRMC S4 name: iRMC
Extension: -iRMC
DNS name: iRMCA2FA42
Apply

Figure 163: DNS Configuration page - DNS Name

Register DHCP Address in DNS via DHCP Server

This option is disabled if IPv6 addressing is used.
Enables/disables the transfer of the DHCP name to the DHCP server for the iRMC and the DNS registration via DHCP server.

Register full domain name (FQDN) via DHCP server in DNS

This option is disabled if IPv6 addressing is used.
Enables/disables the transfer of the FQDN (Fully Qualified Domain Name) to the DHCP server for the iRMC and the DNS registration via DHCP server.

DNS Update Enabled

Enables/disables update of DNS records via Dynamic DNS.

Only insecure DNS is supported.

Use iRMC S4 name instead of server hostname

The iRMC name specified in the *iRMC S4 Name* entry field is used for the iRMC instead of the server name.

Add Serial Number

The last 3 bytes of the MAC address of the iRMC are appended to the DHCP name of the iRMC.

Add Extension

The extension specified in the *Extension* entry field is appended to the DHCP name of the iRMC.

iRMC S4 name

iRMC name passed to DHCP for the iRMC in place of the server name. Depending on the related options, the iRMC name is used as part of the DNS name.

Extension

Name extension for the iRMC.

DNS name

Shows the configured DNS name for the iRMC.

► Click *Apply* to store the configured settings.

7.13.5 SNMP Generic Configuration

The *SNMP Generic Configuration* page allows you to configure an SNMP service on the iRMC which supports SNMP v1/v2c and SNMPv3 on the following SNMP MIBs:

– SNMP MIB-2

– SNMP STATUS.MIB

– SNMP OS.MIB

– SNMP SC2.MIB

– SNMP RAID.MIB

When the SNMP service is enabled, information provided by these MIBs can be used by any system running an SNMP Manager.

SNMPv3 provides a higher level of security than SNMPv1 or SNMPv2c.

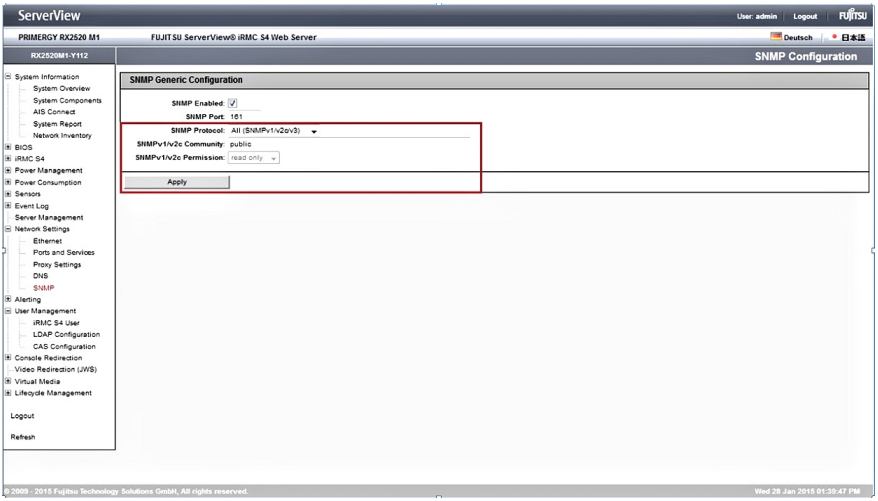


Figure 164: SNMP Configuration page

SNMP Enabled

Enables SNMP service on the iRMC.

SNMP Port

Port on which the SNMP service is listening (normally UDP 161).

SNMP Protocol

SNMP protocol version to be used. For each user, you can configure if a user is allowed to use SNMP, see section "iRMC S4 User - local user management on the iRMC" on page 280.

All (SNMPv1/v2c/v3)

The SNMP service is available for all SNMP protocol versions (SNMP v1/v2c/v3).

SNMPv3 only

Only SNMPv3 is available.

The following two options are only displayed if *All (SNMPv1/v2c/v3)* has been selected under *SNMP Protocol*.

SNMPv1/v2c Community

Community string in case of SNMP v1/v2c.

The community string may contain the following characters:

A-Z,a-z,0-9(*/:,_?=-@&)%!

Space characters and \ are not allowed.

In SNMP terminology, a "community" denotes a group comprising one or more management platforms. Every community is identified by a community string. The community string is a non-encrypted component of every SNMP request and identifies the sender of the request as a member of the community concerned. Thus, authorization for a SNMP GET request is controlled with this community string. The community string makes a simple authentication mechanism available in SNMP.

Since the community string is sent in non-encrypted form with the SNMP message, it is always at a risk of being used without authorization. This can be problematic for using SNMP with security in mind. On the other hand, most communities use the preset community string "public" in any case.

SNMPv1/v2c Permission

Permission for the SNMP community. Currently, only "read only" is supported (fixed preset value).

► Click *Apply* to store the configured settings.

7.14 Alerting - Configure alerting

The *Alerting* entry contains the links to the pages you use to configure alerting for the iRMC:

– "SNMP Trap Alerting - Configure SNMP trap alerting" on page 271.

– "Email Alerting - Configure email alerting" on page 273.

7.14.1 SNMP Trap Alerting - Configure SNMP trap alerting

The *SNMP Trap Alerting* page allows you to view and configure the settings for SNMP trap alerting.

Traps are sent regardless if SNMP is enabled or not. They are sent via net-snmp interface to support SNMPv1 / V2c and SNMPv3 traps.

Forwarding of SNMP traps to up to seven SNMP servers is supported.

For each user, you can configure if a user is allowed to use SNMP, see section "iRMC S4 User - local user management on the iRMC" on page 280

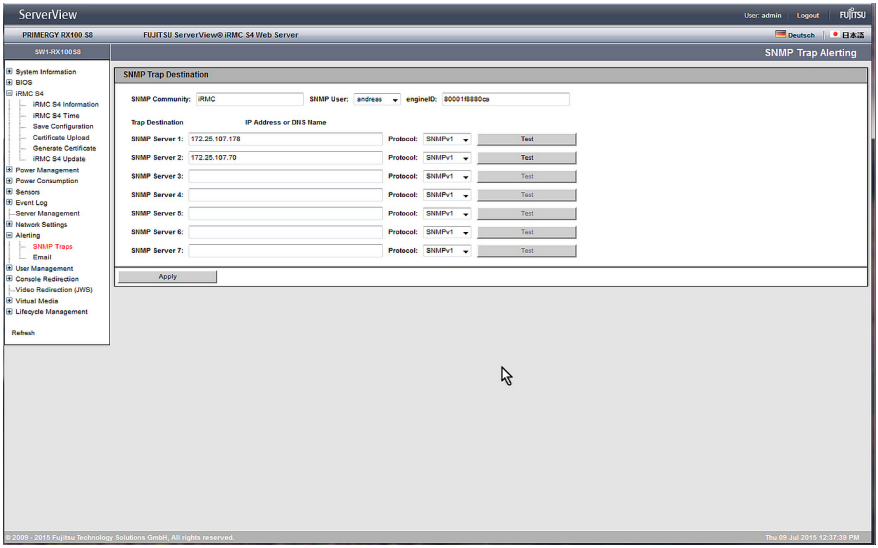


Figure 165: SNMP Trap Alerting page

SNMP Community

Name of the SNMP community.

- ► Click *Apply* to accept the community name.

SNMP user

Preconfigured SNMPv3 user for SNMPv3 trap destination

engineID

The *engineID* is used for sending SNMPv3 traps. The *engineID* can be changed in compliance with RFC3411. The ID needs to be unique across the set of communicating SNMPv3 Agents and Managers. The rules for an *engineID* are as follows:

- It must be at least five octets in length and may not be longer than 32 octets. Each octet can contain a value from 0 up to 255 (Hexadecimal: 0x00 up to 0xff).
- An SNMP *engineID* must not be set to all 0s or 255s (Hexadecimal: 0xff).
- If an *engineID* starts with a 0 it must be 12 octets long.
- For each *engineID* there must be a *createUser* directive in the SNMP trap receiver configuration.

SNMP Server1 .. SNMP Server7 (trap destinations)

DNS names or IP addresses of the servers that belong to this community and are to be configured as *Trap Destinations*. SNMP protocol version to be used for receiving traps.

- ► Click *Apply* to activate the SNMP server as a trap destination.
- ► Click *Test* to test the connection to the SNMP server.

► Click *Apply All* to activate all the settings if appropriate.

7.14.2 Email Alerting - Configure email alerting

The *Email Alerting* page allows you to configure the settings for email alerting.

Configuration of two mail servers is supported.

Email alerting can be specified individually for each user (see section "User “<name>” Configuration - User configuration (details)" on page 283).

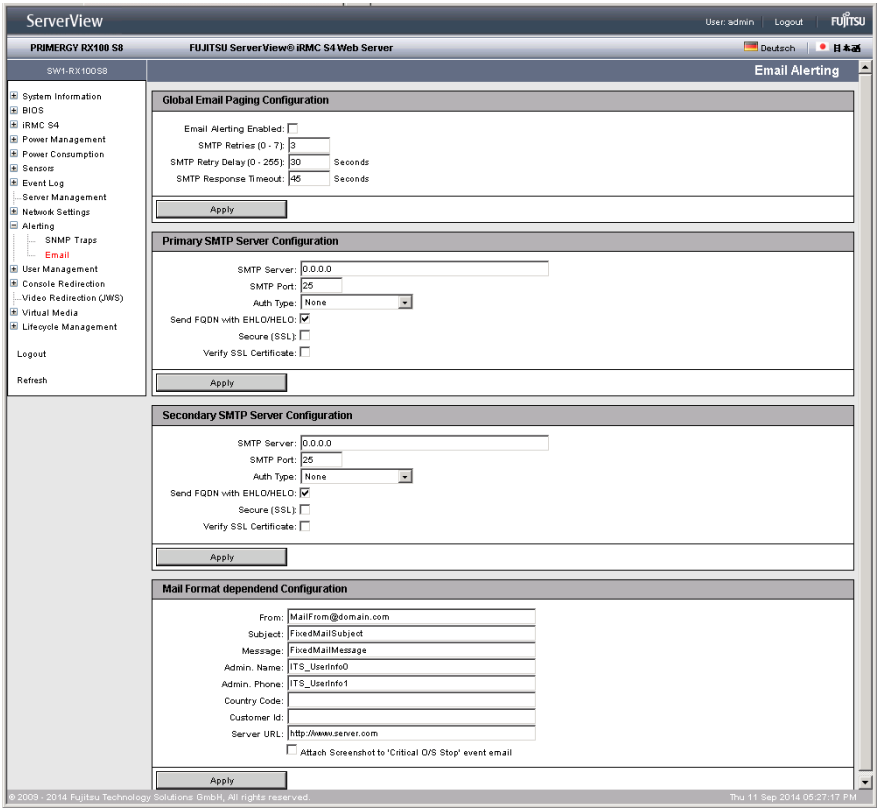


Figure 166: Email Alerting page

Global Email Paging Configuration - Configure global email settings

The *Global Email Paging Configuration* group allows you to configure the global email settings.

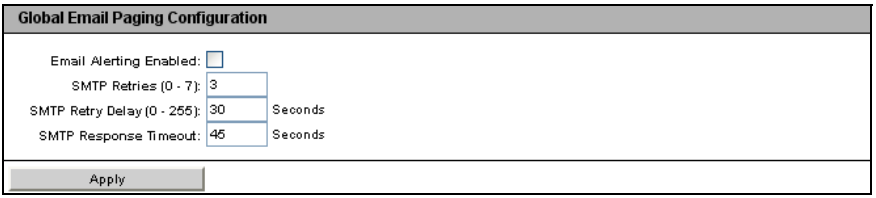


Figure 167: Email Alerting page, Global Email Configuration

Email Alerting Enable
Activate this option.

SMTP Retries (0 - 7)
Number of SMTP retries.

SMTP Retry Delay (0 - 255)
Time (in seconds) between SMTP retries.

SMTP Response Timeout
Timeout (in seconds) for an SMTP response.

- Click *Apply* to activate your settings.

Primary SMTP Server Configuration - Configure primary mail server

The *Primary SMTP Server Configuration* group allows you to configure the primary server (SMTP server).

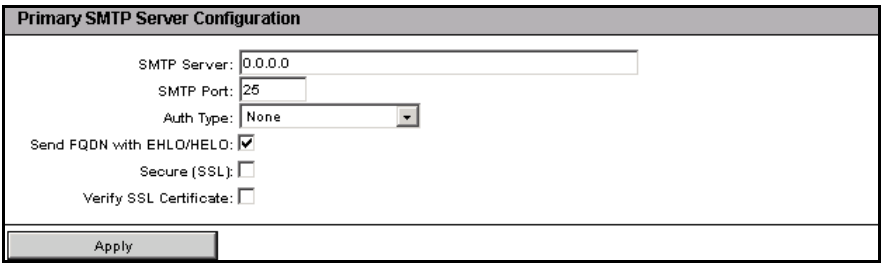


Figure 168: Email Alerting page, Primary SMTP Server Configuration

SMTP Server

IP address of the primary mail server

You can activate the Domain Name System (DNS) for the iRMC (see "DNS Configuration - Configuring DNS for the iRMC" on page 264). You can then use a symbolic name instead of the IP address.

SMTP Port

SMTP port of the mail server

Auth Type

Authentication type for connecting the iRMC to the mail server:

– *None*
No authentication for the connection.

– *SMTP AUTH (RFC 2554)*
Authentication according to RFC 2554: SMTP Service Extension for Authentication.

In this case, the following information is required:

Auth User Name
User name for authentication on the mail server

Auth Password
Password for authentication on the mail server

Confirm Password
Confirm the password entered.

Send FQDN with EHLO/HELO

Enables/disables sending the FDQN with EHLO/HELO.

Secure (SSL)

Depending on the configured network port the iRMC will directly establish an SSL connection (SMTPS legacy port 465) or check for the presence of the `STARTTLS` keyword (any other configured network port):

– If `STARTTLS` is present in the response from the SMTP server the iRMC switches to TLS on the existing network connection.

– If `STARTTLS` is not present, the mail will be sent unencrypted over the existing connection.

Email is sent SSL encrypted.

Verify SSL Certificate

The SSL certificate from the SMTP server is verified against the stored CA certificate in the iRMC (e.g. the SMTP server certificate has to be issued/signed by this CA).

► Click *Apply* to activate your settings.

Secondary SMTP Server Configuration - Configure secondary mail server

The *Secondary SMTP Server Configuration* group allows you to configure the secondary server (SMTP server).

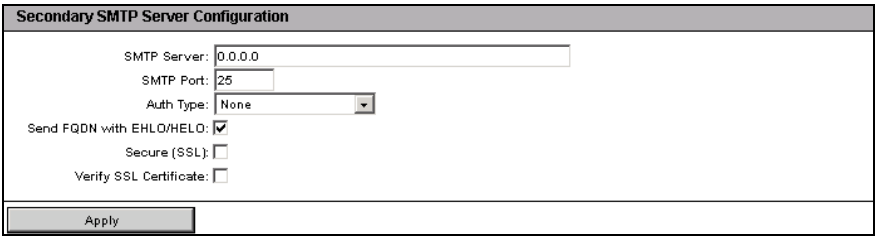


Figure 169: Email Alerting page - Secondary SMTP Server Configuration

SMTP Server

IP address of the secondary mail server

You can activate the Domain Name System (DNS) for the iRMC (see "DNS Configuration - Configuring DNS for the iRMC" on page 264). You can then use a symbolic name instead of the IP address.

SMTP Port

SMTP port of the mail server

Auth Type

Authentication type for connecting the iRMC to the mail server:

– *None*
No authentication for the connection.

– *SMTP AUTH (RFC 2554)*
Authentication according to RFC 2554: SMTP Service Extension for Authentication.

In this case, the following information is required:

Auth User Name
User name for authentication on the mail server

Auth Password
Password for authentication on the mail server

Confirm Password
Confirm the password entered.

Send FQDN with EHLO/HELO
Enables/disables sending the FDQN with EHLO/HELO.

Secure (SSL)
Email is sent SSL encrypted.

Verify SSL Certificate
SSL certificate is verified.

► Click *Apply* to activate your settings.

Mail Format dependent Configuration - Configure mail-format-dependent settings

The *Mail Format dependent Configuration* group allows you to configure the mail-format-dependent settings. You specify the mail format for each user using the *New User Configuration* - *User <Name> Configuration* - *Email Format Configuration* page (see page 291).

The following email formats are supported:

– Standard
– Fixed Subject
– ITS-Format
– SMS-Format

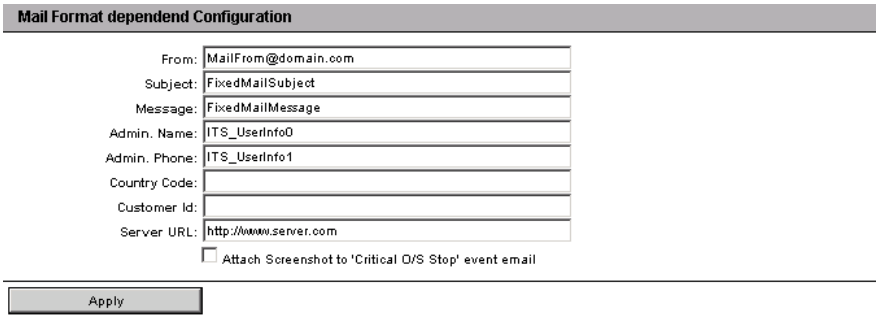


Figure 170: Email Alerting page, Mail Format dependent Configuration

Some entry fields are disabled depending on the mail format.

From

Sender identification iRMC.
Active for all mail formats.

> If the string entered here contains an “@”, the string is interpreted as a valid email address. Otherwise, “admin@<ip-address>” is used as the valid email address.

Subject

Fixed subject for the alert mails.
Only active for the *Fixed Subject* mail format (see page 291).

Message

Type of message (email).
Only active for the *Fixed Subject* mail format (see page 291).

Admin Name

Name of the administrator responsible (optional).
Only active for the *ITS* mail format (see page 291).

Admin Phone

Phone number of the administrator responsible (optional).
Only active for the *ITS* mail format (see page 291).

Country Code

Two characters country code based on ISO 3166, ISO 3166 alpha 2.

Customer Id

Identifier for the customer.

Server URL

A URL under which the server is accessible under certain conditions. You have to enter the URL manually.
Only active for the *Standard* mail format.

Attach Screenshot to 'Critical O/S Stop' event email

A screenshot generated automatically by the iRMC in case of a critical OS stop event is attached to the corresponding 'Critical O/S Stop' event email.

The generation of the screenshot may fail for various reasons (e.g. unsupported graphic mode). Thus, if no screenshot is available within 45 seconds at most, the email is sent without attachment.

► Click *Apply* to store your settings.

7.15 User Management

The *User Management* entry contains the links to the pages for local user management as well as for the configuration of the directory service for global user management (LDAP configuration):

– "iRMC S4 User - local user management on the iRMC" on page 280.

– "Directory Service Configuration (LDAP) - Configuring the directory service at the iRMC" on page 294.

– "Centralized Authentication Service (CAS) Configuration - Configuring the CAS Service" on page 313.

7.15.1 iRMC S4 User - local user management on the iRMC

The *iRMC S4 User* page contains a table showing all the configured users: Each line contains the data for one configured user. The user names are implemented in the form of links. Clicking on a user name opens the *User "<name>" Configuration* window (see page 283), in which you can view or modify the settings for this user.

User ID 1 ("null user") is reserved for the standard and is therefore unavailable for user management on the iRMC.

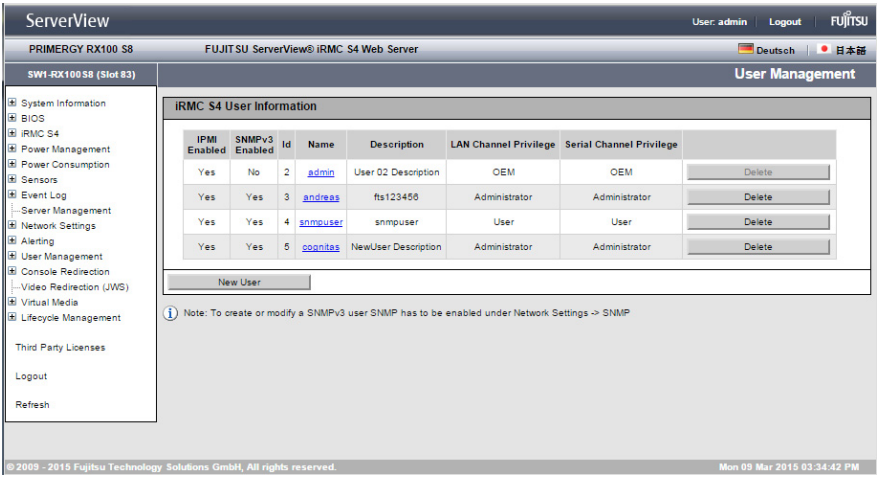


Figure 171: User Management page

Delete

The table of configured users includes a *Delete* button after each user entry. Click this button to delete the associated user after confirming this choice.

New User

When you click this button, the *New User Configuration* page opens (see page 282). You can configure a new user here.

7.15.1.1 New User Configuration - Configuring a new user

The *New User Configuration* page allows you to configure the basic settings for a new user.

You will find explanations of the fields and selection lists on the *New User Configuration* page as of page 284 under the description of the *User "<name>" Configuration* page.

In figure 172 you can see the configuration of a user with the name "User5".

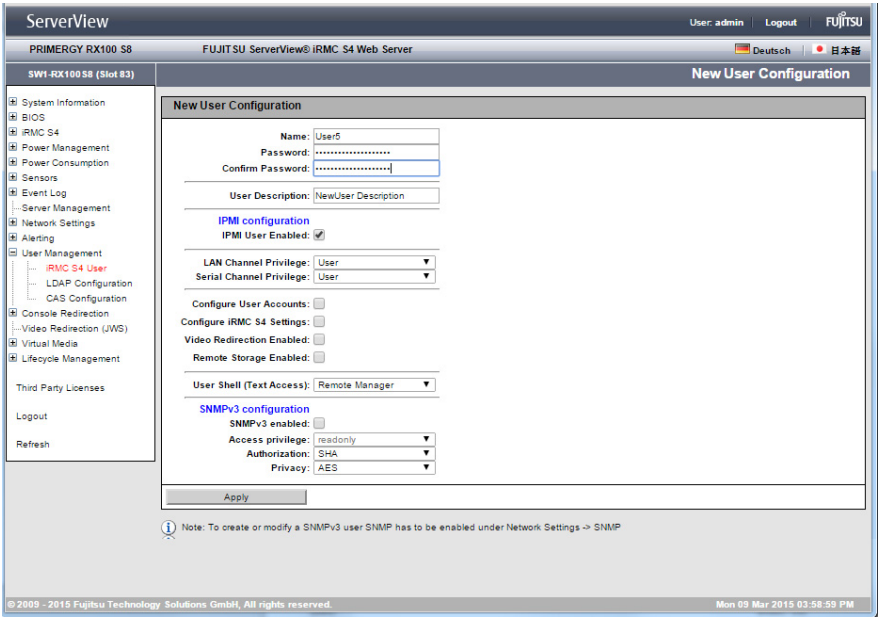


Figure 172: User Management - New User Configuration page

7.15.1.2 User “<name>” Configuration - User configuration (details)

The *User “<name>” Configuration* page allows you to view, modify and extend the settings for a user.

In figure 173 you can see the configuration of the user created in figure 172.

The user ID is shown in brackets after the user name.

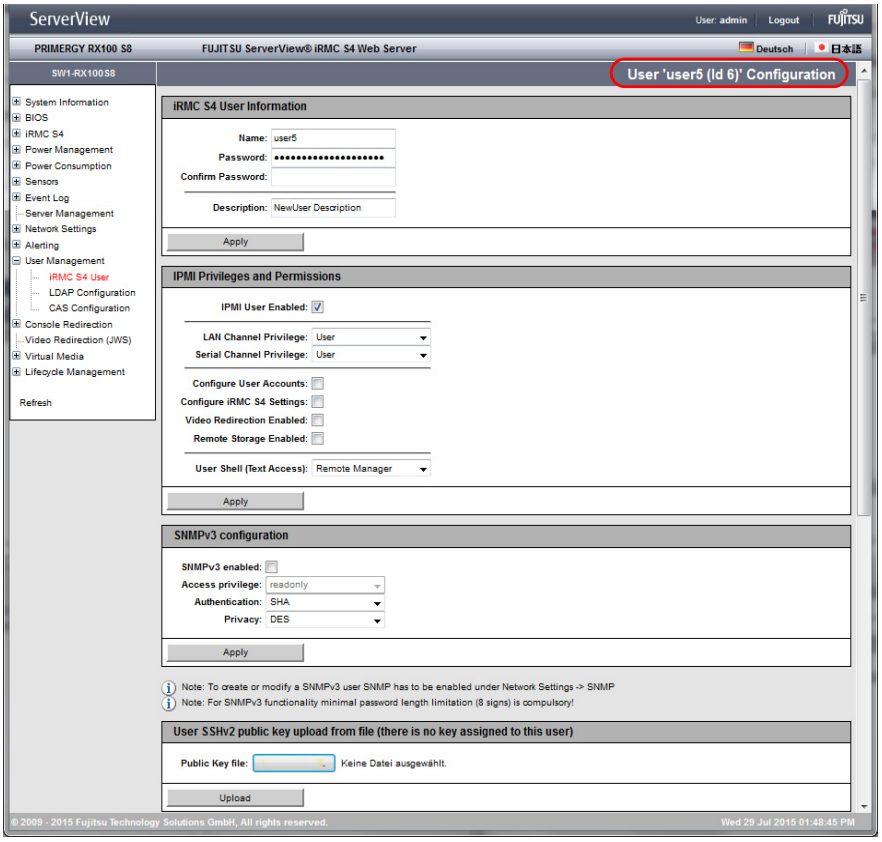


Figure 173: User Management - User “<name>”

iRMC S4 User Information - Configuring user access data

The *iRMC S4 User Information* group allows you to configure the access data for the user.

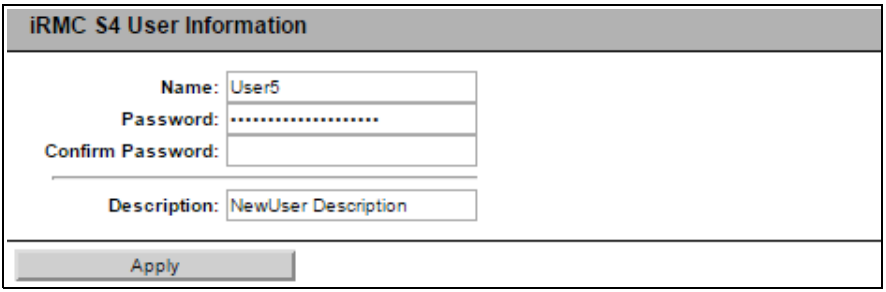


Figure 174: User Management - User “<name>” Configuration page, User Information

Name

Enter the name of the user.

A valid user name must start with a letter. The remaining part of the name may only contain letters, digits, underscores, dashes, periods, and "at" signs (@).

Blank characters are not allowed.

User names must be unique. Duplicate user names are not allowed.

Password

Enter the user password.

Enabling SNMPv3 for the user requires that the password configured for the user has a minimum length of 8 characters.

Confirm Password

Confirm the password by entering it again here.

Description

Enter a general description of the configured user here.

► Click *Apply* to activate your settings.

IPMI Privileges / Permissions - Assigning user privileges

The *IPMI Privileges / Permissions* group allows you to configure the channel-specific user privileges.

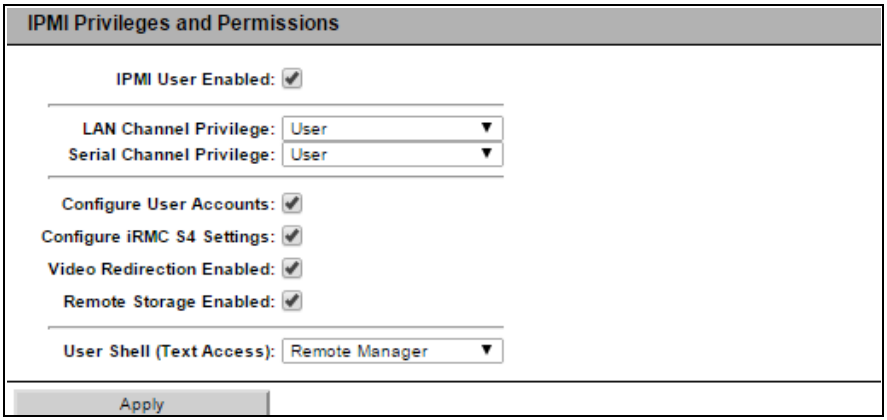


Figure 175: User Management - User “<name>” Configuration page, Privilege / Permissions

IPMI User Enabled

If this option is disabled, the user will not be able to log on to the iRMC.

LAN Channel Privilege

Assign a privilege group for a LAN channel to the user here:

- *User*
- *Operator*
- *Administrator*
- *OEM*

Refer to section "User permissions" on page 62 for information on the permissions associated with the privilege groups.

Serial Channel Privilege

Assign a privilege group for a serial channel to the user here: The same privilege groups are available as for *LAN Channel Privilege*.

In addition to the channel-specific permissions, you can also individually assign users the following channel-independent permissions:

Configure User Accounts
: Permission to configure local user access data.

Configure iRMC S4 Settings
: Permission to configure the iRMC settings.

Video Redirection Enabled
: Permission to use Advanced Video Redirection (AVR) in “View Only” and “Full Control” mode.

Remote Storage Enabled
: Permission to use the Remote Storage functionality.

User Shell (Text Access)
: Select the desired user shell here.
The following options are available:

  – *SMASH CLP*
  See section "Start a Command Line shell... - Start a SMASH CLP shell" on page 380.

  – *Remote Manager*
  See chapter "iRMC S4 via Telnet/SSH (Remote Manager)" on page 359.

  – *None*

► Click *Apply* to activate your settings.

SNMPv3 configuration

The *SNMPv3 configuration* group allows you to configure the iRMC user for SNMPv3. Compared to SNMPv1/v2c, SNMPv3 provides a higher level of security by authenticating and encrypting the SNMP packets.

The parameters of the *SNMPv3 configuration* group are disabled (grayed out) if the *SNMP enabled* option in the *SNMP Configuration* page is disabled (see section "SNMP Generic Configuration" on page 268).

Enabling SNMPv3 for the user requires that the password configured for this user has a minimum length of 8 characters.

Although the SNMPv3 standard allows you to configure SNMPv3 "without authentication and without encryption (*noAuthNoPriv*)" or "with authentication but without encryption (*authNoPriv*)", the *SNMPv3 configuration* group only allows you to configure "with authentication and with encryption (*authPriv*)" for security reasons (see below).

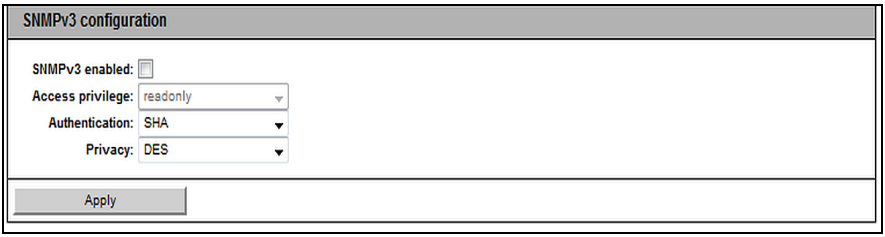


Figure 176: User Management - User “<name>” Configuration page, SNMPv3 configuration

SNMPv3 enabled

Enables SNMPv3 support for the user.

Access privilege

Access privilege of the user. Currently, *readonly* is fixed preset.

Authentication

Select the authentication protocol that SNMPv3 uses for authentication.

SHA

Secure hash algorithm (SHA) is used for authentication.

MD5

Message-Digest Algorithm 5 (MD5) is used for authentication.

Privacy

Select the privacy protocol that SNMPv3 uses for encrypting the SNMPv3 traffic.

DES

Digital Encryption Standard is used for encrypting the SNMPv3 traffic.

AES

Advanced Encryption Standard (AES) 128-bit encryption is used for encrypting the SNMPv3 traffic.

- Click *Apply* to activate your settings.

User SSHv2 public key upload from file

The *User SSHv2 public Key upload from file* group allows you to load a user SSHv2 public key from a local file.

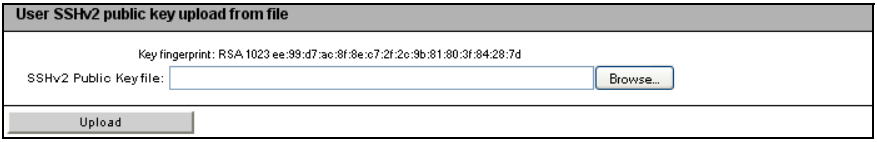


Figure 177: User Management - User “<name>” Configuration page, User SSHv2 public key upload from file

Browse...

Opens a file browser that allows you to navigate to the file containing the SSHv2 public key.

Upload

Loads the SSHv2 public key specified in the input field onto the iRMC.

For further details on SSHv2 public key authentication for iRMC users see section "SSHv2 public key authentication for iRMC S4 users" on page 66.

S/MIME Certificate

The *S/MIME certificate upload from file* group allows you to load an S/MIME certificate from a local file.

In conjunction with S/MIME, the iRMC only supports encryption. Signing is not supported.

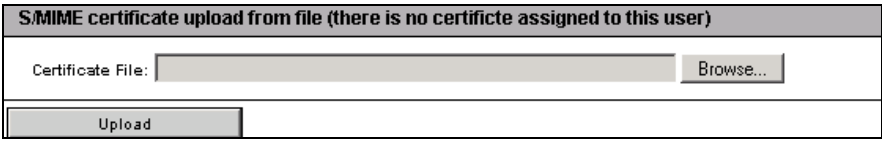


Figure 178: User Management - User “<name>” Configuration page, S/MIME certificate upload from file

Browse...

Opens a file browser that allows you to navigate to the file containing the SSHv2 public key.

Upload

Uploads the selected S/MIME certificate.

After the S/MIME certificate has been uploaded, the *S/MIME certificate upload from file* group is displayed as follows:

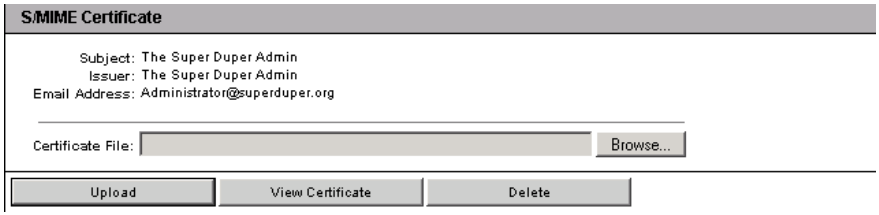


Figure 179: User Management - User “<name>” Configuration page, S/MIME certificate has been uploaded from file

View Certificate

Displays the S/MIME certificate until the next refresh cycle or manual refresh of the iRMC web interface.

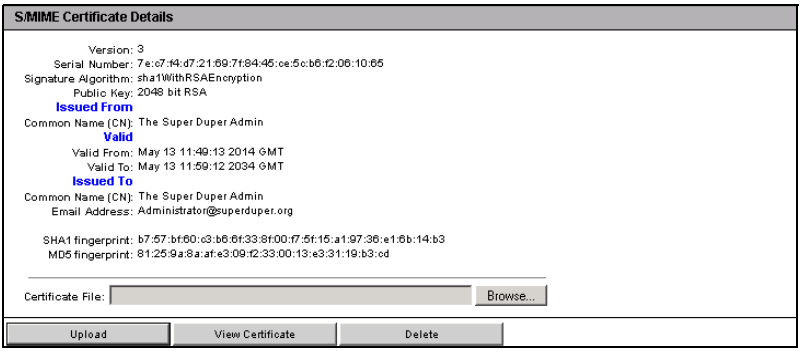


Figure 180: User Management - User “<name>” Configuration page, S/MIME certificate - View Certificate

Delete

Deletes the S/MIME certificate from the iRMC.

Email Configuration - Configure user-specific email settings

The *Email Configuration* group allows you to configure the user-specific settings governing the email format.

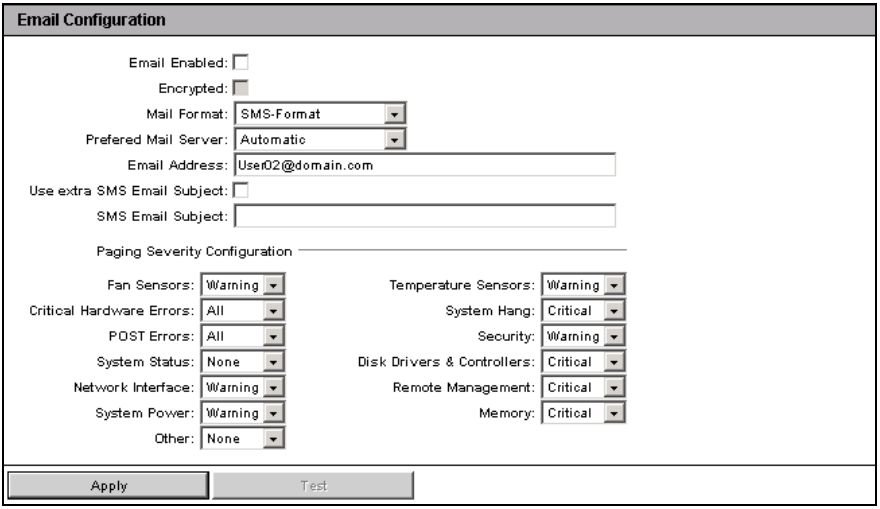


Figure 181: User Management - User “<name>” Configuration page, Email Configuration

Email Enabled

Specify whether the user is to be informed about system statuses by email.

Encrypted

Specify whether emails should be encrypted with S/MIME.

Mail Format

Depending on the selected email format, you can make a number of settings in the *Email Alerting - Mail Format dependent Configuration group* (see page 278).

The following email formats are available:

- *Standard*
- *Fixed Subject*
- *ITS-Format*
- *SMS-Format*

Only generating emails with 160 characters maximum length, *SMS-Format* is the preferred email to SMS gateways solution.

Preferred Mail Server

Select the preferred mail server.
You can choose one of the following options:

– *Automatic*

  If the email cannot be sent successfully immediately, for instance because the preferred mail server is not available, the email is sent to the second mail server.

– *Primary*

  Only the mail server which has been configured as the primary SMTP server (see page 274) is used as the preferred mail server.

– *Secondary*

  Only the mail server which has been configured as the secondary SMTP server (see page 276) is used as the preferred mail server.

Errors sending email are recorded in the event log.

Email Address

Email address of recipient.

Use extra SMS Email Subjects

Only displayed if *Mail Format: SMS-Format* is enabled.

If enabled, an SMS gateway provider specific email subject is used.

SMS Email Subject (Only if *Mail Format: SMS-Format* is enabled)

SMS gateway provider-specific Email subject.

Paging Severity Configuration

Here you can configure system events about which an iRMC user is to be informed by email.

Every entry in the event log for the iRMC is assigned to a particular paging group.

The following settings are available for each event group:

None

The notification function is deactivated for this paging group.

Critical

The iRMC notifies users by email if an entry in the system event log is reported as *CRITICAL*.

Warning

The iRMC notifies users by email if an entry in the system event log is reported as *Minor* or *Major* or *Critical*.

All

The iRMC notifies users of every event in this group which causes an entry to be made in the system event log.

► Click *Apply* to activate your settings.

7.15.2 Directory Service Configuration (LDAP) - Configuring the directory service at the iRMC

In order to perform global user management via a directory service (see the "User Management in ServerView" manual), you must configure the iRMC appropriately in the *Directory Service Configuration* page.

Currently, support for iRMC LDAP access is provided for the following directory services: Microsoft Active Directory, Novell eDirectory and Open LDAP.

The following characters are reserved as metacharacters for search strings in LDAP: *, \, &, |,!, =, <, >, ~,:

You must therefore not use these characters as components of Relative Distinguished Names (RDN).

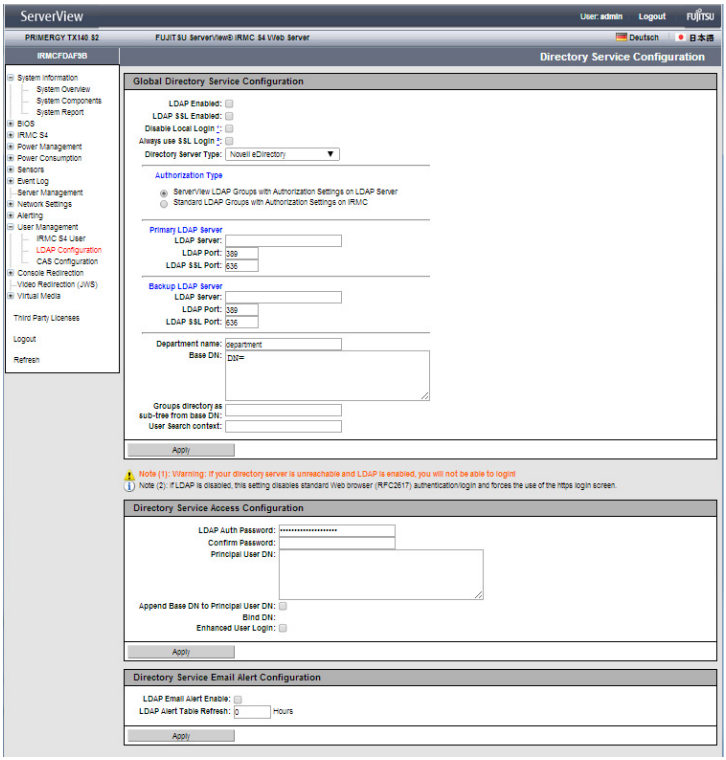


Figure 182: Directory Service Configuration page (LDAP configuration)

LDAP Enabled

This option specifies whether the iRMC can access a directory service via LDAP. Directory service access via LDAP is only possible if *LDAP Enable* has been activated.

If *LDAP Enable* is checked then the login information (see page 122) is always transferred with SSL encryption between the web browser and the iRMC.

LDAP SSL Enabled

If you check this option then data transfer between iRMC and the directory server is SSL encrypted.

LDAP SSL Enable has no influence on whether or not the iRMC web interface pages are SSL-protected on opening.

You should only activate *LDAP SSL Enable* if a domain controller certificate is installed.

Disable Local Login

If you activate this option then all the local iRMC user identifications are locked and only the user identifications managed by the directory service are valid.

CAUTION!

If the option *Disable Local Login* is activated and the connection to the directory service fails then it is no longer possible to log in at the iRMC.

Always use SSL Login

This option is only relevant if LDAP is deactivated.

If you activate this option then the HTTP SSL-secured login page is always used even if LDAP is deactivated. Only if you do not activate *Always use SSL Login* and LDAP is deactivated is a mask secured via Digest Authentication Login used.

Directory Server Type

Type of directory server used:

The following directory services are supported:

- *Active Directory*: Microsoft Active Directory
- *Novell*: Novell eDirectory
- *OpenLDAP*: OpenLDAP
- *Open DS /Open DJ / Apache DS*

Authorization Type

Authorization type used.

ServerView LDAP Groups with Authorization Settings on LDAP Server

ServerView-specific LDAP groups with authorization settings in the *SVS* structure on the LDAP server are used to determine user permissions (see manual "User Management in ServerView").

Standard LDAP Groups with Authorization Settings on iRMC

No ServerView-specific *SVS* structure on the LDAP server is used. Instead, user authentication is checked by means of the standard LDAP group the user belongs to. iRMC-specific user permissions for this standard LDAP group must be configured locally on the iRMC. For this the *Directory Service User Group Information* group is displayed (see section "Standard LDAP groups with authorization settings on the iRMC S4" on page 297).

This method supports group nesting. Therefore, all iRMC - specific user permissions which you assign to a standard LDAP group are automatically inherited by its nested groups.

► Click *Apply* to activate your settings.

Different input fields are provided, depending on the directory service you select:

- For *Active Directory*, refer to section "Configuring iRMC for Microsoft Active Directory" on page 302.
- For *eDirectory*, *Open LDAP* and *OpenDS DJ*, refer to section "Configuring iRMC for Novell eDirectory / OpenLDAP / OpenDS / Open DJ" on page 307.

7.15.2.1 Standard LDAP groups with authorization settings on the iRMC S4

If *Standard LDAP Groups with Authorization Settings on iRMC* has been enabled in the *Directory Service Configuration* page, some additional settings are required which allow you to administer LDAP groups on the iRMC. These LDAP groups are used to define iRMC privileges and permissions for users who belong to standard LDAP groups on the directory server.

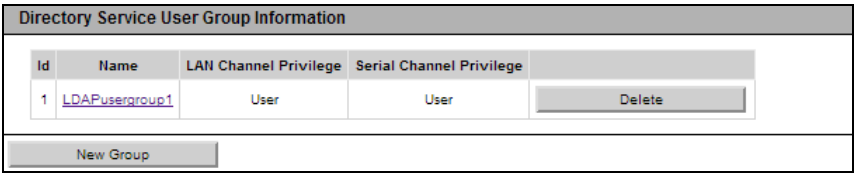


Figure 183: Microsoft Active Directory: Directory Service User Group Information

Delete

Deletes the corresponding user group information.

New Group

Opens the *New LDAP User Group* group which allows you to define a new LDAP group the iRMC permissions for a new LDAP group:

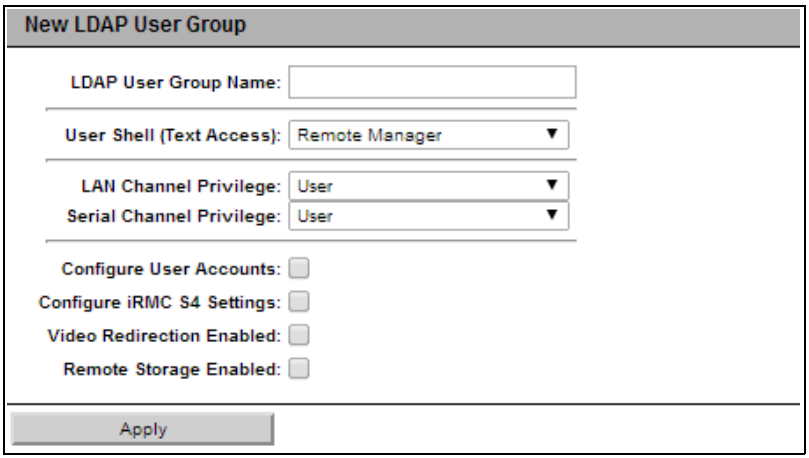


Figure 184: Microsoft Active Directory: New LDAP User Group

LDAP User Group Name

Name of the new LDAP user group

User Shell (Text Access)

Select the desired user shell here.
The following options are available:

- *SMASH CLP*
  See section "Start a Command Line shell... - Start a SMASH CLP shell" on page 380.
- *Remote Manager*
  See chapter "iRMC S4 via Telnet/SSH (Remote Manager)" on page 359.
- *None*

LAN Channel Privilege

Assign a privilege group for a LAN channel to the user here:

- *User*
- *Operator*
- *Administrator*
- *OEM*

Refer to section "User permissions" on page 62 for information on the permissions associated with the privilege groups.

Serial Channel Privilege

Assign a privilege group for a serial channel to the user here: The same privilege groups are available as for *LAN Channel Privilege*.

Configure User Accounts

Permission to configure local user access data.

Configure iRMC S4 Settings

Permission to configure the iRMC settings.

Video Redirection Enabled

Permission to use Advanced Video Redirection (AVR) in “View Only” and “Full Control” mode.

Remote Storage Enabled

Permission to use the *Virtual Media* functionality.

<Name>

Clicking a link in the *Name* column opens a new page allowing you to modify and/or supplement the configuration settings of the corresponding LDAP user group:

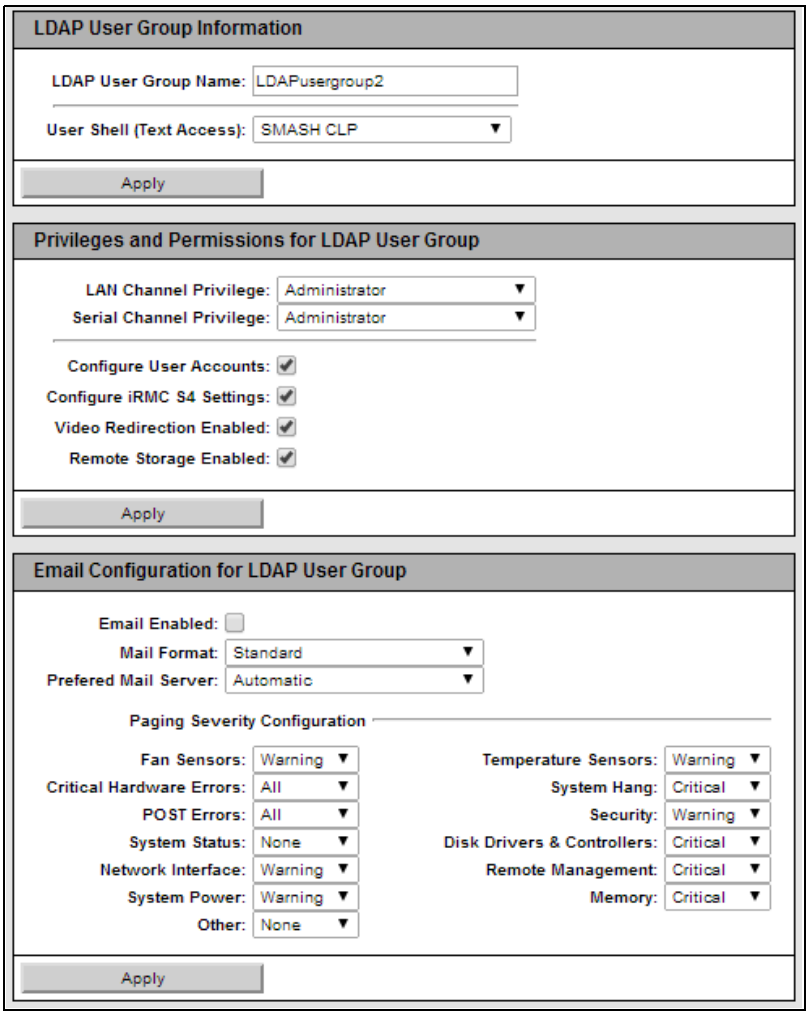


Figure 185: Microsoft Active Directory: Directory Service User Group Information

The Options of *LDAP User Group Information* and *Privileges and Permissions for LDAP User Group* are as described under the *New Group* option (see page 297).

The options of *Email Configuration for LDAP User Group* are as follows:

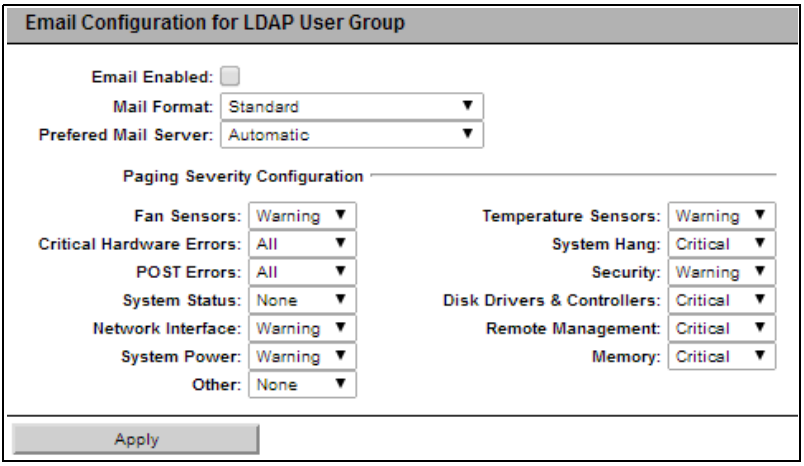


Figure 186: Microsoft Active Directory: Directory Service User Group Information

Email Enabled

Specify whether the user is to be informed about system statuses by email.

Mail Format

Depending on the selected email format, you can make a number of settings in the *Email Alerting - Mail Format dependent Configuration group* (see page 278).

The following email formats are available:

- *Fixed Subject*
- *ITS-Format*
- *SMS-Format*

Preferred Mail Server

Select the preferred mail server.
You can choose one of the following options:

– *Automatic*

  If the email cannot be sent successfully immediately, for instance because the preferred mail server is not available, the email is sent to the second mail server.

– *Primary*

  Only the mail server which has been configured as the primary SMTP server (see page 274) is used as the preferred mail server.

– *Secondary*

  Only the mail server which has been configured as the secondary SMTP server (see page 276) is used as the preferred mail server.

Errors sending email are recorded in the event log.

Email Address

Email address of recipient.

Email address must be configured for the user in the LDAP directory.

Paging Severity Configuration

Here you can configure system events about which an iRMC user is to be informed by email. Every entry in the event log for the iRMC is assigned to a particular paging group.

The following settings are available for each event group:

– *None*

  The notification function is deactivated for this paging group.

– *Critical*

  The iRMC notifies users by email if an entry in the system event log is reported as *CRITICAL*.

– *Warning*

  The iRMC notifies users by email if an entry in the system event log is reported as *Minor* or *Major* or *Critical*.

– *All*

The iRMC notifies users of every event in this group which causes an entry to be made in the system event log.

► Click *Apply* to activate your settings.

7.15.2.2 Configuring iRMC for Microsoft Active Directory

After you have confirmed the *Active Directory* you have chosen by clicking *Apply*, the following variant of the *Directory Service Configuration* page is shown:

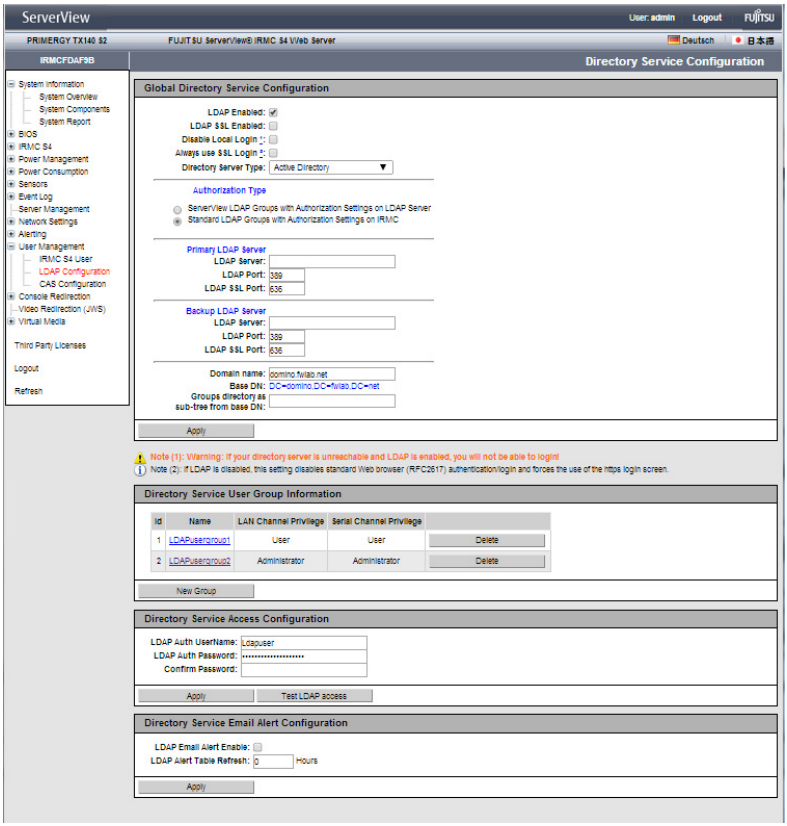


Figure 187: Directory Service Configuration: Specifications for Microsoft Active Directory

The entries shown as examples in figure 187 refer to the examples and figures shown in the "User Management in ServerView" manual.

Proceed as follows:

► Complete your specifications in the *Global Directory Service Configuration* group:

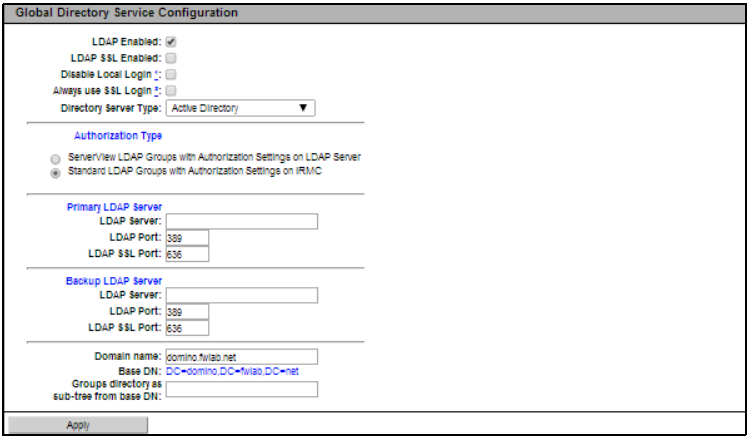


Figure 188: Global Directory Service Configuration: Specifications for Microsoft Active Directory

Primary LDAP Server

LDAP directory server that is to be used.

LDAP Server

IP address or DSN name of the primary LDAP server.

LDAP Port

LDAP port of the primary LDAP server.

LDAP SSL Port

Secure LDAP port of the primary LDAP server

Backup LDAP Server

LDAP directory server which is maintained as the backup server and used as the directory server if *LDAP Server 1* fails.

LDAP Server

IP address or DSN name of the Backup LDAP server.

LDAP Port

LDAP port of the Backup LDAP server.

LDAP SSL Port

Secure LDAP port of the Backup LDAP server

Domain Name

Complete DNS path name of the directory server.

Base DN

Base DN is automatically derived from *Domain Name*.

Groups directory as sub-tree from base DN

Pathname of the organizational unit (OU) which as a subtree of *Base DN* (Group DN Context) contains the OUs *SVS* or *iRMCgroups*.

Department name

This option is only displayed if the option *ServerView LDAP Groups with Authorization Settings on LDAP Server* has been enabled.

The department name is used in the directory service in order to determine the user permissions and alert roles. A user may have different permissions for the department X server than for the department Y server.

► Click *Apply* to activate your settings.

► Configure the iRMC -local user groups data in the *LDAP User Group Information* group:

The *LDAP User Group Information* group is only displayed if the option *Standard LDAP Groups with Authorization Settings on iRMC* has been enabled.

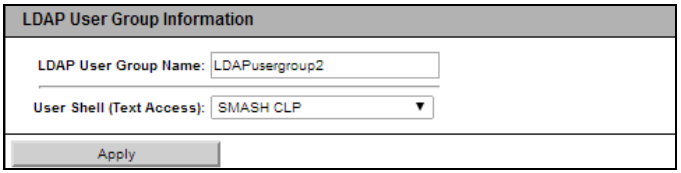


Figure 189: Microsoft Active Directory: LDAP User Group Information

For details see section "Standard LDAP groups with authorization settings on the iRMC S4" on page 297.

► Click *Apply* to activate your settings.

► Configure the LDAP access data in the *Directory Service Access Configuration* group:

The settings that you make here are required for alerting in connection with global user identifications. If alerting is not enabled, the settings in the *Directory Service Access Configuration* group are not significant.

Figure 190: Microsoft Active Directory: Directory Service Access Configuration

LDAP Auth User Name

User name the iRMC uses to log onto the LDAP server.

LDAP Auth Password

Password the user specified under User Name uses to authenticate themselves on the LDAP server.

Confirm Password

Repeat the password you entered under *LDAP Auth Password*.

Test LDAP Access

Checks the access data to the LDAP directory server and shows the LDAP status as the result (see figure 191).

This test only checks the basic access data (“Is the LDAP server present?”, “Is the user configured?”), but does not fully authenticate the user.

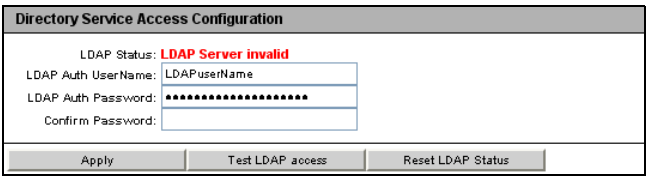


Figure 191: Microsoft Active Directory: Status of the connection to the LDAP server

► Click *Reset LDAP Status* to reset the status display.

► Click *Apply* to activate your settings.

► Configure the settings for global email alerting in the *Directory Service Email Alert Configuration* group.

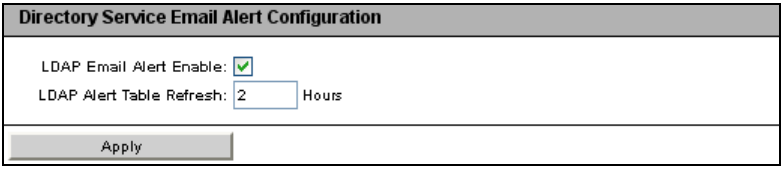


Figure 192: Directory Service Email Alert Configuration

LDAP Email Alert Enable

Enables global email alerting.

LDAP Alert Table Refresh [Hours]

Defines the interval at which the email table is regularly updated (see the "User Management in ServerView" manual).

It is strongly recommended that you specify a value >0. A value of “0” means that the table is not updated regularly.

► Click *Apply* to activate your settings.

7.15.2.3 Configuring iRMC for Novell eDirectory / OpenLDAP / OpenDS / Open DJ

After you have confirmed you choice of *Novell* or *OpenLDAP* by clicking *Apply*, the following variant of the *Directory Service Configuration* page is shown.

The *Directory Service Configuration* page has an identical structure for Novell eDirectory, OpenLDAP and OpenDS / OpenDJ.

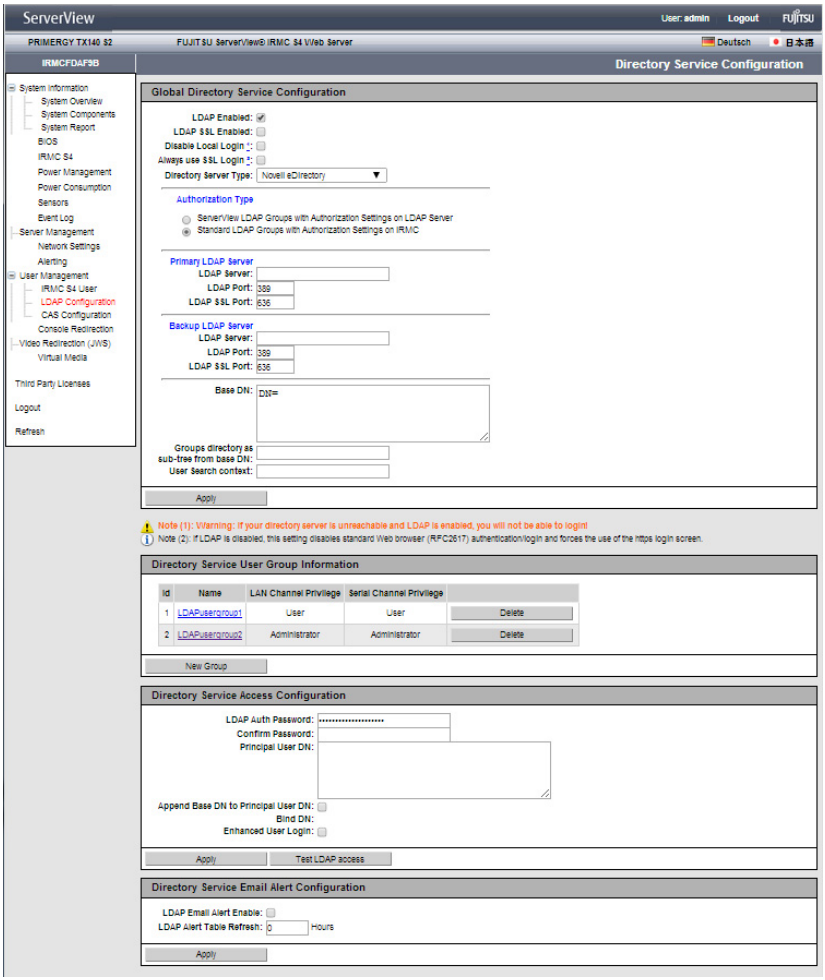


Figure 193: Global Directory Service Configuration: Specifications for Novell eDirectory / Open LDAP

Proceed as follows:

- Complete your specifications in the *Global Directory Service Configuration* group:

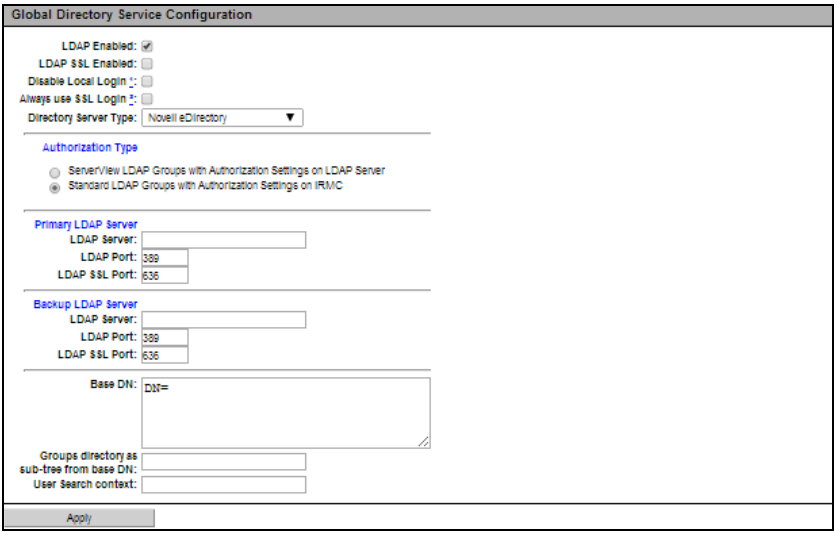


Figure 194: Global Directory Service Configuration: Specifications for Novell eDirectory / Open LDAP / OpenDS / Open DJ

Primary LDAP Server

LDAP directory server that is to be used.

LDAP Server

IP address or DSN name of the primary LDAP server.

LDAP Port

LDAP port of the primary LDAP server.

LDAP SSL Port

Secure LDAP port of the primary LDAP server

Backup LDAP Server

LDAP directory server which is maintained as the backup server and used as the directory server if *LDAP Server 1* fails.

LDAP Server

IP address or DSN name of the Backup LDAP server.

LDAP Port

LDAP port of the Backup LDAP server.

LDAP SSL Port

Secure LDAP port of the Backup LDAP server

Department Name

This option is only displayed if the option *ServerView LDAP Groups with Authorization Settings on LDAP Server* has been enabled.

Department name. The directory service needs the department name in order to determine the user permissions. A user may have different permissions for the department X server than for the department Y server.

Base DN

The *Base DN* is the fully distinguished name of the eDirectory or Open LDAP server and represents the tree or subtree that contains the OU (Organizational Unit) *SVS* or *iRMCgroups*. This DN forms the starting point for LDAP searches.

Groups directory as sub-tree from base DN

Pathname of the OU which as a subtree of *Base DN* (Group DN Context) contains the OU *SVS*.

User Search Context

Starting point for searching Users. A User Search Context rule is evaluated when searching for iRMC users. It returns a valid LDAP distinguished name (DN) which serves as the base context for searching users.

LDAP group scheme

Scheme for an LDAP group.

LDAP member scheme

Scheme for an LDAP user.

► Click *Apply* to activate your settings.

- Configure the iRMC -local user groups data in the *LDAP User Group Information* group:

  The *LDAP User Group Information* group is only displayed if the option *Standard LDAP Groups with Authorization Settings on iRMC* has been enabled.

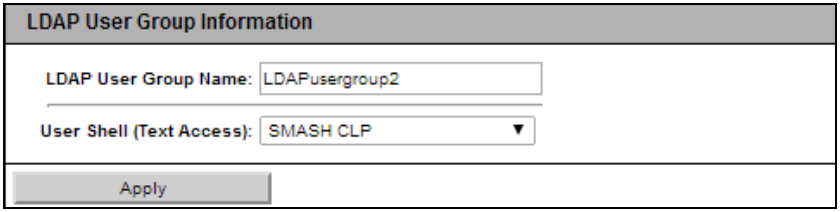


Figure 195: Microsoft Active Directory: LDAP User Group Information

For details see section "Standard LDAP groups with authorization settings on the iRMC S4" on page 297.

  - Click *Apply* to activate your settings.

- Configure the LDAP access data in the *Directory Service Access Configuration* group:

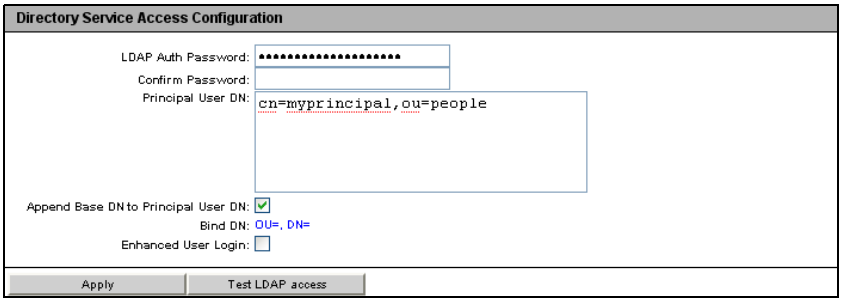


Figure 196: Novell eDirectory / Open LDAP: Directory Service Access Configuration

LDAP Auth Password

Password the *Principal User* uses to authenticate themselves on the LDAP server.

Confirm Password

Repeat the password you entered under *LDAP Auth Password*.

Principal User DN

Fully distinguished name, i.e. the full description of the object path and attributes of the generic iRMC user ID (principal user), under which the iRMC queries the permissions of the iRMC users from the LDAP server.

Append Base DN to Principal User DN

If you activate this option, you do not need to specify the Base DN under *Principal User DN*. In this event, the Base DN is used that you specified under *Base DN* in the *Global Directory Service Configuration* group.

Bind DN

Bind DN shows the principal user DN used for LDAP authentication.

Enhanced User Login

Enhanced flexibility when users log in.

CAUTION!

Only activate this option if you are familiar with the LDAP syntax. If you inadvertently specify and activate an invalid search filter, users can only log in to the iRMC under a global login after the *Enhanced User Login* option has been deactivated.

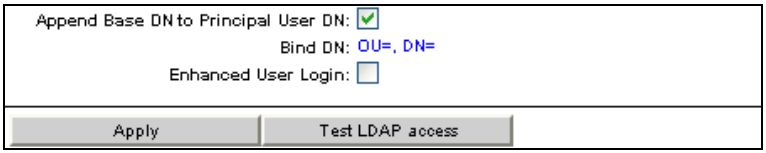


Figure 197: Enhanced User Login

If you select *Enhanced User Login* and activate it with *Apply*, an additional field *User Login Search Filter* appears containing the standard login search filter "(&(objectclass=person)(cn=%s))".

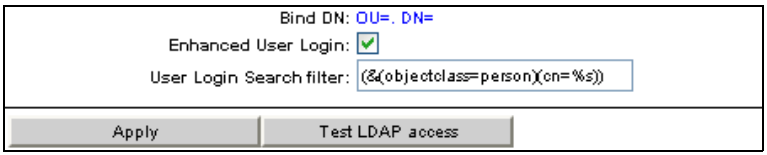


Figure 198: LDAP search filter for “Enhanced User Login”

At login, the placeholder “%s” is replaced by the associated global login. You can modify the standard filter by specifying another attribute in place of “cn=”. All global logins are then permitted to log into the iRMC which meet the criteria of this search filter.

Test LDAP Access

Checks the access data to the LDAP directory server and shows the LDAP status as the result (see figure 191).

This test only checks the basic access data (“Is the LDAP server present?”, “Is the user configured?”), but does not fully authenticate the user.

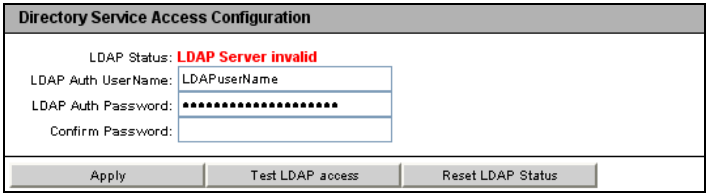


Figure 199: eDirectory / OpenLDAP: Status of the connection to the LDAP server

► Click *Reset LDAP Status* to reset the status display.

► Click *Apply* to activate your settings.

► Configure the settings for global email alerting in the *Directory Service Email Alert Configuration* group.

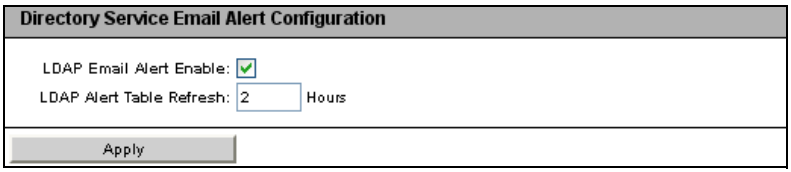


Figure 200: Directory Service Email Alert Configuration

LDAP Email Alert Enable

Enables global email alerting.

LDAP Alert Table Refresh [Hours]

Defines the interval at which the email table is regularly updated (see the "User Management in ServerView" manual). A value of “0” means that the table is not updated regularly.

► Click *Apply* to activate your settings.

7.15.3 Centralized Authentication Service (CAS) Configuration - Configuring the CAS Service

This view is not supported by all PRIMERGY servers with iRMC.

SSO is only supported for accessing the iRMC via the web interface. SSO is **not** supported for accessing the iRMC via the Remote Manager (Telnet/SSH).

The *Centralized Authentication Service (CAS) Configuration* page allows you to configure the iRMC web interface for CAS-based single sign-on (SSO) authentication.

The first time a user logs in to an application within the SSO domain of the CAS service, they are prompted for their credentials by the CAS-specific login screen. Once they have been successfully authenticated by the CAS service, the user is granted access to the iRMC web interface as well as to any other service within the SSO domain without being prompted for login credentials again.

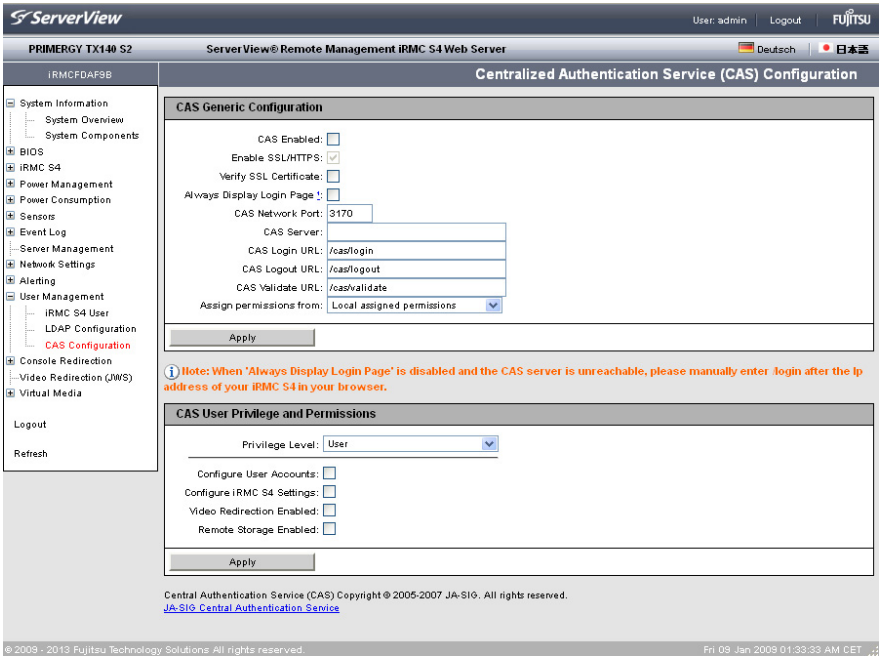


Figure 201: Centralized Authentication Service (CAS) Configuration

CAS Generic Configuration

The *CAS Generic Configuration* group allows you to configure CAS access data.

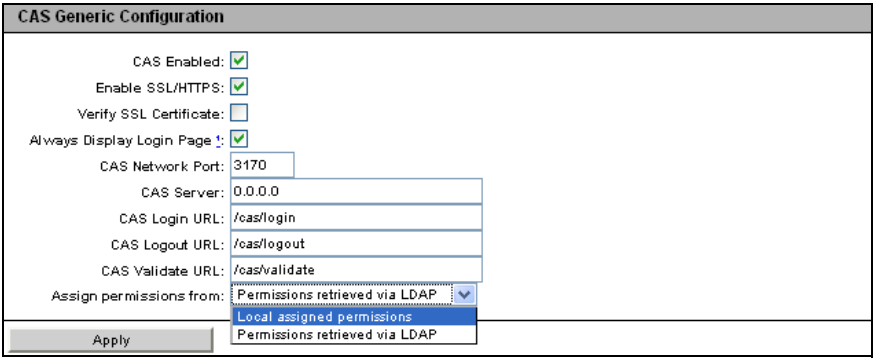


Figure 202: CAS Generic Configuration

CAS Enabled

Enables SSO using the CAS service that you specify in the *CAS Generic Configuration* group.

Enable SSL/HTTPS

All communication between the CAS service and the iRMC is SSL encrypted.

Verify SSL Certificate

The SSL Certificate of the CAS service is checked against the CA Certificate.

Always Display Login Page

If *Always Display Login Page* is disabled and the CAS service cannot be reached, type `/login` after the IP address of the iRMC in your browser's navigation bar.

Always displays the iRMC login page:

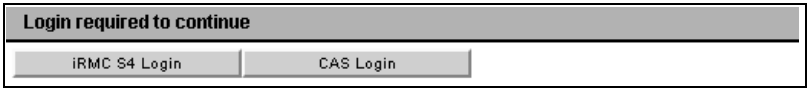


Figure 203: Login page

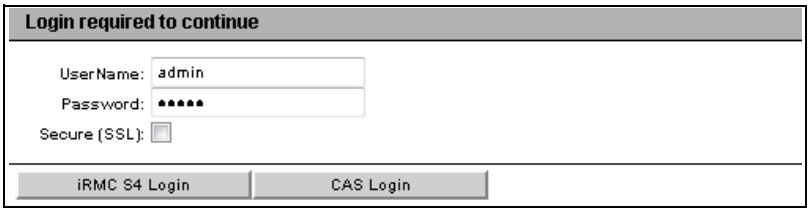


Figure 204: Login page - explicit authentication required

This allows users to temporarily login at the iRMC with privileges and permissions that differ from the authorization profile defined under *CAS User Privilege and Permissions* (see page 317).

A user may, for instance, currently be logged in to the CAS service under a user ID with the *User* privilege and now wants to perform an action requiring the *Administrator* privilege. The user can temporarily login at the iRMC under a user ID with the required privileges. However, the user cannot switch between both user IDs.

The buttons *iRMC Login* and *CAS Login* work as follows:

iRMC S4 Login

Logs the user in to the iRMC web interface with the values specified for *User name* and *Password*. The CAS service is bypassed.

CAS Login

Logs the user in to the iRMC web interface via SSO:

- If the user has not been authenticated by the CAS service yet: The user is redirected to the CAS service for authentication with the specified values for *User name* and *Password*.
- If the user has already been authenticated by the CAS service: The user is logged in at the iRMC without being prompted for user name and password.

CAS Network Port

Port of the CAS service.
Default port number: 3170

CAS Server

DNS name of the CAS service.

It is absolutely necessary that all systems participating in the SSO domain reference the Central Management Station (CMS) via the same addressing representation. (An SSO Domain comprises all systems where authentication is performed using the same CAS service.) Thus, for example, if you have installed the ServerView Operations Manager by using the name "my-cms.my-domain", you must specify exactly the same name for configuring the CAS service for an iRMC. If, instead, you specify only "my-cms" or another IP address of my-cms, SSO will not be enabled between the two systems.

CAS LoginURL

Login URL of the CAS service.

CAS Logout URL

Logout URL of the CAS service.

CAS Validate URL

Validate URL of the CAS service.

Assign permissions from

Defines the iRMC privilege and permissions for users who are logged in to the iRMC via SSO:

Local assigned permissions

The privilege and permissions defined under *CAS User Privileg and Permissions* apply to the user.

Permissions retrieved via LDAP

The authorization profile defined in the LDAP directory service applies to the user.

The *Permissions retrieved via LDAP* option is only available, if LDAP is enabled (see option "LDAP Enabled" on page 295).

CAS User Privilege and Permissions

The *CAS User Privilege and Permissions* group allows you to define the iRMC privileges and permissions a user is granted if they are logged in at the iRMC via SSO.

The *CAS User Privilege and Permissions* group is not displayed if you have selected *Permissions retrieved via LDAP* under *Permissions assigned from* in the *CAS Generic Configuration* group.

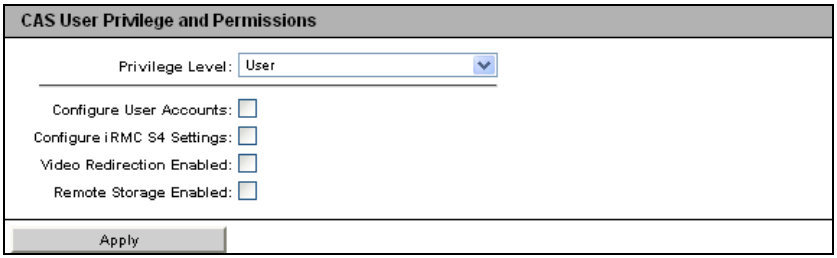


Figure 205: CAS User Privilege and Permissions

Privilege

Assign a privilege group to the user here:

- *User*
- *Operator*
- *Administrator*
- *OEM*

Refer to section "User permissions" on page 62 for information on the permissions associated with the privilege groups.

In addition to the IPMI specific permissions, you can also individually assign users the following channel-independent permissions:

Configure User Accounts

Permission to configure local user access data.

Configure iRMC S4 Settings

Permission to configure the iRMC settings.

Video Redirection Enabled

Permission to use Advanced Video Redirection (AVR) in “View Only” and “Full Control” mode.

Remote Storage Enabled

Permission to use the Virtual Media functionality.

7.16 Console Redirection - Redirecting the console

The following pages are available for console redirection:

- "BIOS Text Console - Configure and start text console redirection" on page 319.
- "Advanced Video Redirection - Start Advanced Video Redirection (AVR)" on page 324.

7.16.1 BIOS Text Console - Configure and start text console redirection

The *BIOS Text Console* page allows you to configure and start text console redirection.

Text console redirection can also be configured in the BIOS (see section "Configuring text console redirection for the iRMC S4" on page 49).

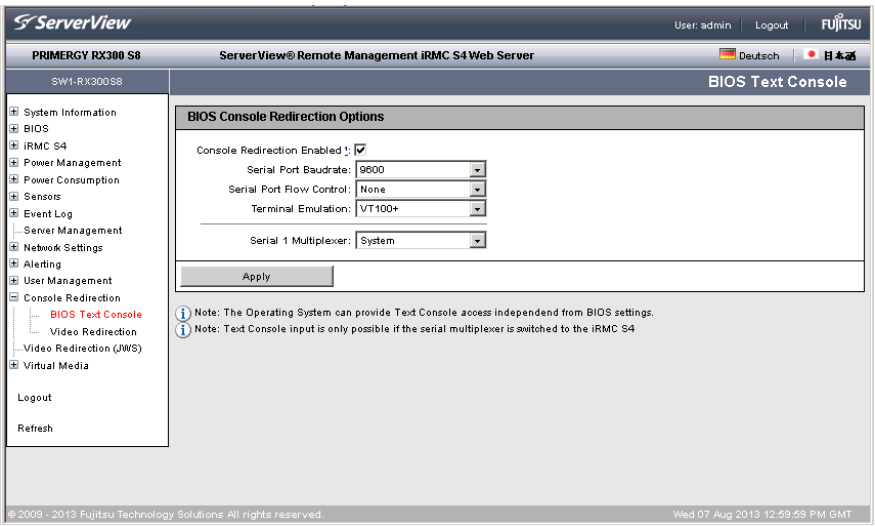


Figure 206: BIOS Text Console page

7.16.1.1 BIOS Console Redirection Options - Configure text console redirection

BIOS Console Redirection Options allows you to configure text console redirection.

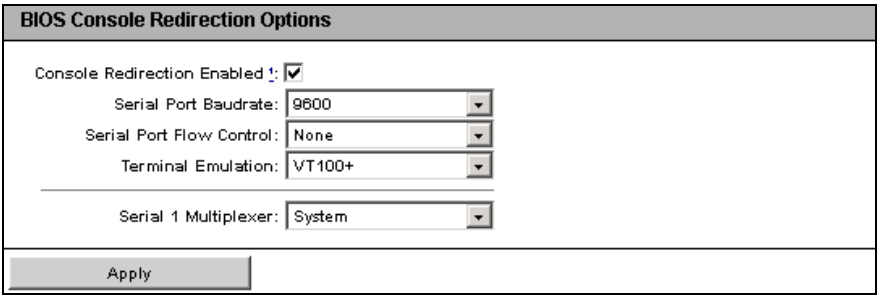


Figure 207: BIOS Text Console page - BIOS Console Redirection Options

Console Redirection Enabled

This option allows you to enable / disable console redirection.

The operating system can also permit text console redirection irrespective of the settings in the BIOS.

Serial Port Baudrate

The following baud rates can be set: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200.

Serial Port Flow Control

The following settings are possible:

None

Flow control is disabled.

XON/XOFF (Software)

Flow control is handled by the software.

CTS/RTS (Hardware)

Flow control is handled by the hardware.

Terminal Emulation

The following terminal emulations are available:

VT100 7Bit, VT100 8Bit, PC-ANSI 7Bit, PC-ANSI 8 Bit, VT100+, VT-UTF8

Serial 1 Multiplexer

Check the consistency of the multiplexer settings:

- Serial: System
- LAN: iRMC

► Click *Apply* to activate your settings.

7.16.1.2 Text console redirection while the operating system is running

Depending on the operating system used on the managed server, you can continue to use console redirection after the BIOS / UEFI POST phase.

DOS

Condition:

The BIOS setting for console redirection mode must be set to *Enhanced* (see the section "BIOS Text Console - Configure and start text console redirection" on page 319).

If the managed server starts the PRIMERGY ServerView Suite diagnosis software, you can operate PRIMERGY ServerView Suite diagnosis using console redirection.

Windows Server 2008 / 2012

Windows Server 2008 / 2012 handles console redirection automatically after the POST phase. No further settings are necessary. While the operating system is booting, the Windows Server 2008 SAC console / Windows Server 2012 SAC console is transferred:

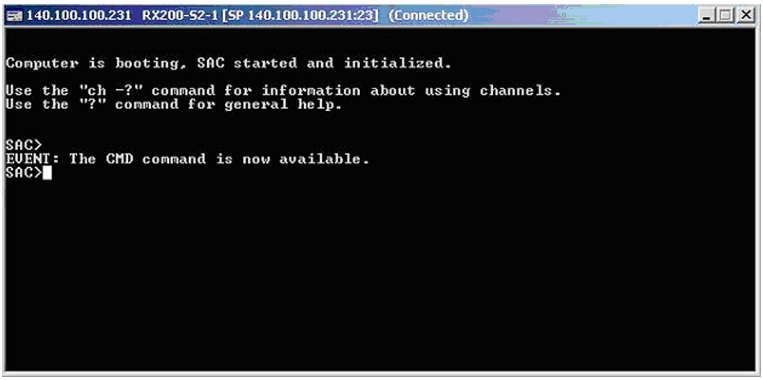

140.100.100.231 RX200-S2-1 [SP 140.100.100.231:23] (Connected)
Computer is booting, SAC started and initialized.
Use the "ch -?" command for information about using channels.
Use the "?" command for general help.
SAC>
EVENT: The CMD command is now available.
SAC>

Figure 208: Windows Server SAC console

Linux

You must configure a Linux operating system in such a way that it handles console redirection after the POST phase. Once it has been configured, you have complete remote access.

Settings required

The settings may differ between program versions.

SuSe and RedHat

Add the following line to the end of the file */etc/inittab*:

```
xx:12345:respawn:/sbin/agetty <baud-rate> ttyS0
```

RedHat

Insert the following kernel boot parameter in the file */etc/grub.conf*:

```
console=ttyS0,<baud-rate> console=tty0
```

SuSE

Insert the following kernel boot parameter in the file */boot/grub/menu.lst*:

```
console=ttyS0,<baud-rate> console=tty0
```

7.16.2 Advanced Video Redirection - Start Advanced Video Redirection (AVR)

The *Advanced Video Redirection* page allows you to start graphical console redirection. The “Advanced Video Redirection” feature redirects graphical output from the managed server to the remote workstation and assigns keyboard and mouse input from the remote workstation to the managed server so that you can access the managed server from the remote workstation as if you were working locally.

AVR can be used by two users simultaneously. One user has full control over the server (full-control mode) and the other can only passively observe keyboard and mouse operation of the server (view-only mode).

In order to use the iRMC function *Advanced Video Redirection*, you require a license key (see section "iRMC S4 Information - Information on the iRMC" on page 174).

The AVR functionality is made available with a Java applet or via HTML5.

Important note:

Java caching **must not** be disabled. Otherwise AVR cannot be started. (Java caching is enabled per default).

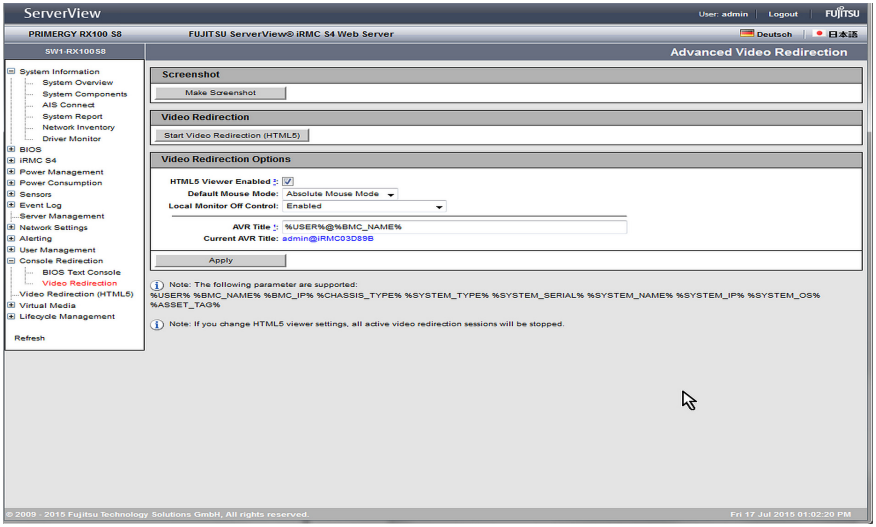


Figure 209: Advanced Video Redirection page

Creating an ASR screenshot

The *ASR Screenshot* page allows you to

– take a screenshot of the current VGA screen on the managed server (video screenshot) and store it in the firmware of the iRMC,

– view the screenshot stored in the iRMC firmware,

– delete the screenshot stored in the iRMC firmware,

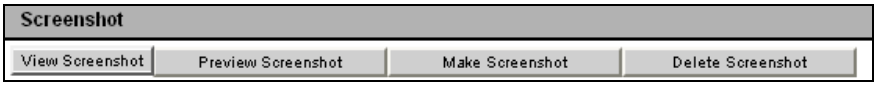


Figure 210: Creating an video screenshot

A video screenshot is automatically created in case of a SEL entry for "OS critical stop“.

A maximum of **one** video screenshot is stored in the firmware of the iRMC, namely the most recently created screenshot.

The following actions are available by clicking on one of the buttons displayed:

View Screenshot

(This only appears if a video screenshot has been stored.)
The screenshot is shown in a separate browser window.

Preview Screenshot

(This only appears if a video screenshot has been stored.)
A thumbnail of the screenshot is shown in the *ASR Screenshot* group.

Make Screenshot

Takes a new video screenshot.

Delete Screenshot

(This only appears if a video screenshot has been stored.)
The video screenshot stored in the iRMC firmware is deleted after you have confirmed that you wish to do so.

AVR Active Session Table - Show current AVR sessions

The *AVR Active Session Table* lists the currently active AVR sessions. If no AVR session is currently active then the *AVR Active Session Table* is not displayed.

If two AVR Sessions are currently active, a *Disconnect* button is displayed for each Session.

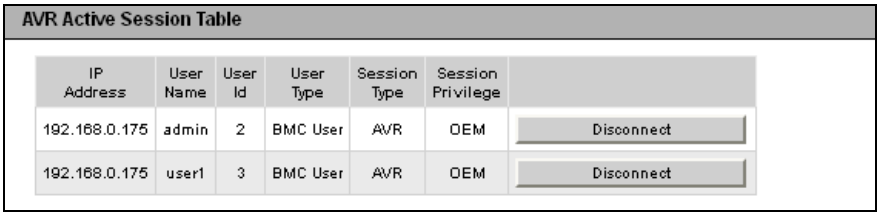


Figure 211: AVR Active Session Table - (two active AVR sessions)

Disconnect

If you click *Disconnect*, a confirmation dialog box appears in which you can close the AVR session to the left of the button.

> You can only close AVR sessions of other users with the *Disconnect* button. To close your own session, choose *Exit* from the *Extras* menu in the AVR window (see page 91).

Video Redirection Options

This function is not supported for all PRIMERGY servers.

The *Video Redirection Options* group allows you to specify various options that apply for the duration of the AVR session.

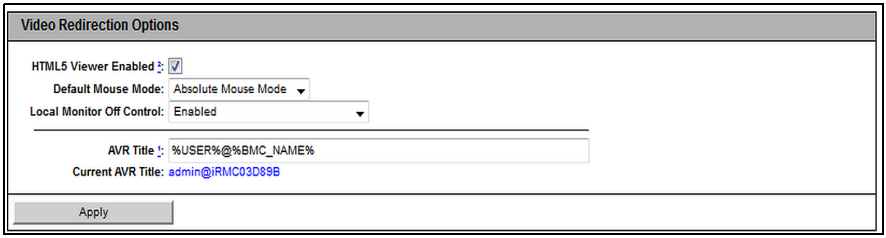


Figure 212: Video Redirection Options

HTML5 Viewer Enabled

When this option is enabled:

- The button in the *Video Redirection* group changes from *Start Video Redirection (Java Web-Start)* to *Start Video Redirection (HTML5)*.
- The node *Video Redirection (JWS)* in the navigation tree changes to *Video Redirection (HTML5)*.

Both elements open a browser window containing the AVR via HTML5 interface.

Default Mouse Mode

Defines the default mouse mode (*Absolute Mouse Mode, Relative Mouse Mode*, or *Other Mouse Mode*).

Depending on the server operating system, you must make the following settings:

- Windows: *Absolute mouse mode*, *Hide mouse mode (Relative)* or *Relative mouse mode*
- Linux: *Absolute mouse mode*, *Hide mouse mode (Relative)* or *Relative mouse mode.*

Default setting: *Absolute mouse mode*

Local Monitor Off Control

The current status of the local monitor is indicated the AVR *Video* menu and displayed via the second icon from the right in the AVR Tool bar (see section "AVR Tool bar" on page 106

Enables / disables the *Local Monitor Off Control* function of the iRMC.

Enabled

Enables the *Local Monitor Off Control* function. In full-access mode of an AVR session, you can switch the local monitor of the server on and off from the remote workstation.

Disabled

Disables the *Local Monitor Off Control* function, i.e. the local monitor is always switched on and cannot be switched off.

Automatic Off when AVR is started

This option only takes effect if the *Local Monitor Off Control* function is enabled.

If you enable the *Automatic Off when AVR is started* option, the local monitor is automatically switched off for the duration of the session when an AVR session is started. After the AVR session is closed, the local monitor is automatically switched on again if no concurrent session with enabled *Local Monitor Off control* is active.

Parallel AVR sessions:

Even if you switch on the local monitor during your AVR session, the local monitor is automatically switched off again if a new, concurrent AVR session is started.

The local monitor is switched on again automatically when all AVR sessions have been closed.

AVR Title

Title of your choice which will be displayed in the AVR title bar.

The following predefined variables can be used in the AVR title:

```
%USER%, %BMC,_NAME%, %BMC_IP%, %CHASSIS_TYPE%,
%SYSTEM_TYPE%, %SYSTEM_SERIAL%, %SYSTEM_NAME%,
%SYSTEM_IP%, %SYSTEM_OS%, %ASSET_TAG%
```

Current AVR Title

Displays the AVR title which will be displayed in the AVR title bar.

► Click *Apply* to activate your settings.

Video Redirection - Starting AVR using Java

You start AVR in the *Video Redirection* group.

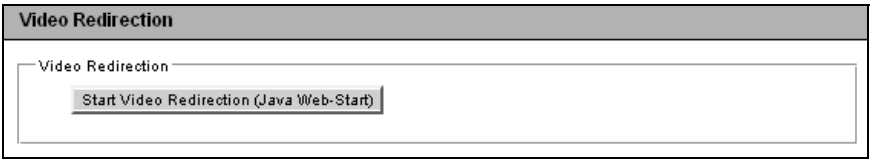


Figure 213: Advanced Video Redirection page - Local Monitor

► Click *Start Video Redirection (Java Web-Start)* to start a second AVR session.

The Java applet for Advanced Video Redirection is started.

For details on the AVR window, see chapter "Advanced Video Redirection (AVR)" on page 79.

The two active AVR sessions are shown as follows on the *Advanced Video Redirection* page:

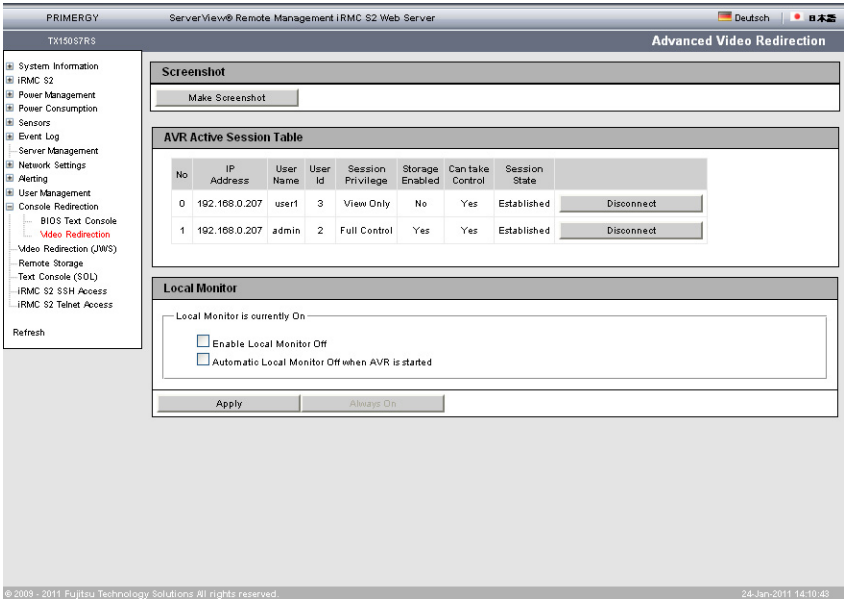


Figure 214: AVR window with two active AVR sessions

Disconnect

If you click *Disconnect*, a confirmation dialog box appears in which you can close the AVR session to the left of the button.

> You can only close AVR sessions of other users with the *Disconnect* button. To close your own session, choose *Exit* from the *Extras* menu in the AVR window (see page 91).

The following window appears if the managed server is powered down:

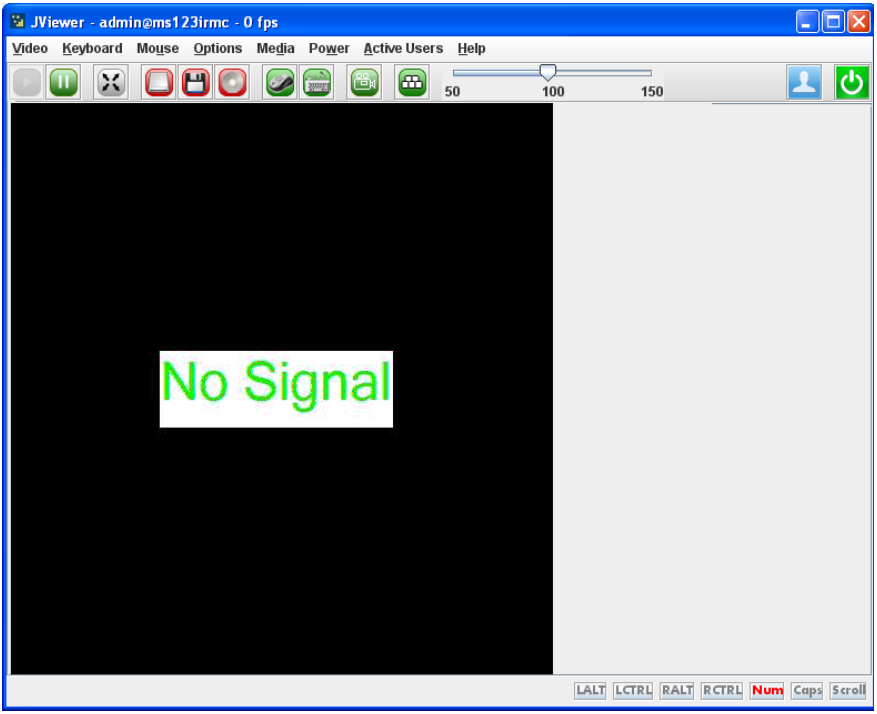

JViewer - admin@ms123irmc - 0 fps
Video Keyboard Mouse Options Media Power Active Users Help
50 100 150
No Signal
LALT LCTRL RALT RCTRL Num Caps Scroll

Figure 215: AVR window when the server is powered down

Video Redirection - Starting AVR using HTML5

You start AVR in the *Video Redirection* group.

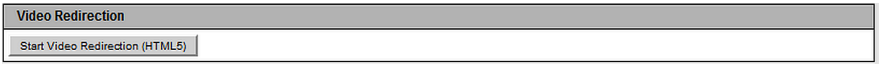


Figure 216: Advanced Video Redirection page - Starting Video Redirection

► Click *Start Video Redirection (HTML5)* to start an AVR session.

The default browser starts with the Advanced Video Redirection, see section "Using AVR via HTML5" on page 109.

The active session is displayed in the *AVR Active Sessions Table* group.

7.17 Virtual Media

The Virtual Media feature provides the managed server with a “virtual” drive which is physically located elsewhere in the network. The source for the virtual drive can be a physical drive (floppy, disk drive, CD-ROM/DVD-ROM) or an ISO image (image file).

In order to use the iRMC function *Virtual Media*, you require a license key (see page 176).

You can make the virtual media available as a physical drive or image file at the remote workstation (see page 112). The image file may also be a network drive (with drive letter, e.g. “D:” for drive D):

The *Virtual Media* link contains links to the following pages:

– "Virtual Media Options - Configuring virtual media options" on page 333.

– "Remote Image Mount - connecting remote ISO images" on page 335.

This link is only displayed if *Remote Image Mount* support has been enabled in the *Virtual Media Options* page.

7.17.1 Virtual Media Options - Configuring virtual media options

The *Virtual Media Options* page allows you to configure the options for the virtual media provided via the iRMC.

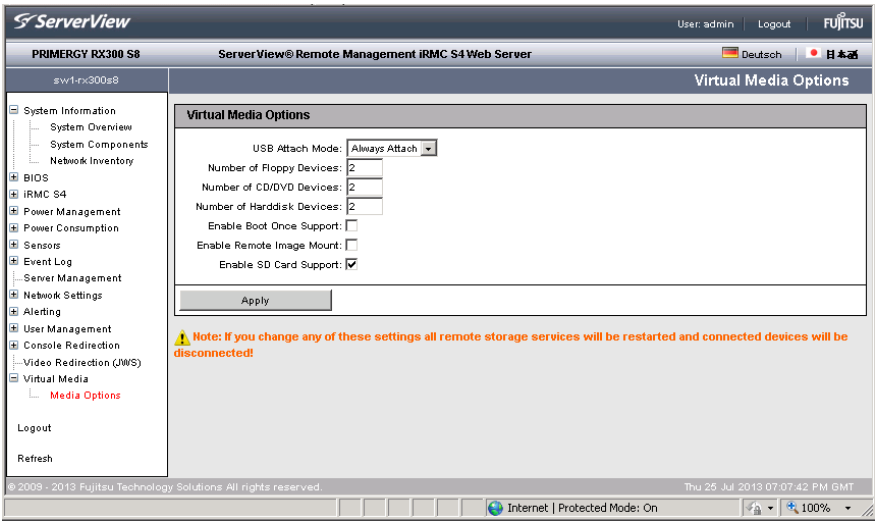


Figure 217: Virtual Media Options page

USB Attach Mode

Attach mode of the virtual media.

The following modes are offered for selection:

Always Attach

The virtual media is always attached to the server.

Auto Attach

The virtual media is attached to the server only when a virtual media session is started.

Number of Floppy Devices

Maximum number of Floppy devices that may be used in a Virtual Media session. 0 to 4 Floppy devices can be configured. Default: 0.

Number of CD/DVD Devices

Maximum number of CD/DVD devices that may be used in a Virtual Media session. 0 to 4 four CD/DVD devices can be configured. Default: 2.

Number of Harddisk Devices

Maximum number of hard disk devices that may be used in a Virtual Media session. 0 to 4 four hard disk devices can be configured. Default: 1.

Enable Remote Image Mount

Enables / disables the Remote Image Mount, which makes it possible to host CD/DVD, Floppy, and hard disk ISO images on a server in the network.

Activating the *Enable Remote Image Mount* option displays the additional *Remote Image Mount* link under *Virtual Media* in the navigation area. Clicking the *Remote Image Mount* link opens the *Remote Image Mount page* which contains the panels for configuring the *Image Options* of the corresponding image type (see page 335).

► Click *Apply* to activate your settings.

7.17.2 Remote Image Mount - connecting remote ISO images

The Remote Image Mount function makes available to the managed server CD/DVD, Floppy, and hard disk ISO images that host on a server in the network.

The *Remote Image Mount* page contains the groups for configuring the *Image Options* of the corresponding image type (CD/DVD, Floppy, and hard disk ISO images).

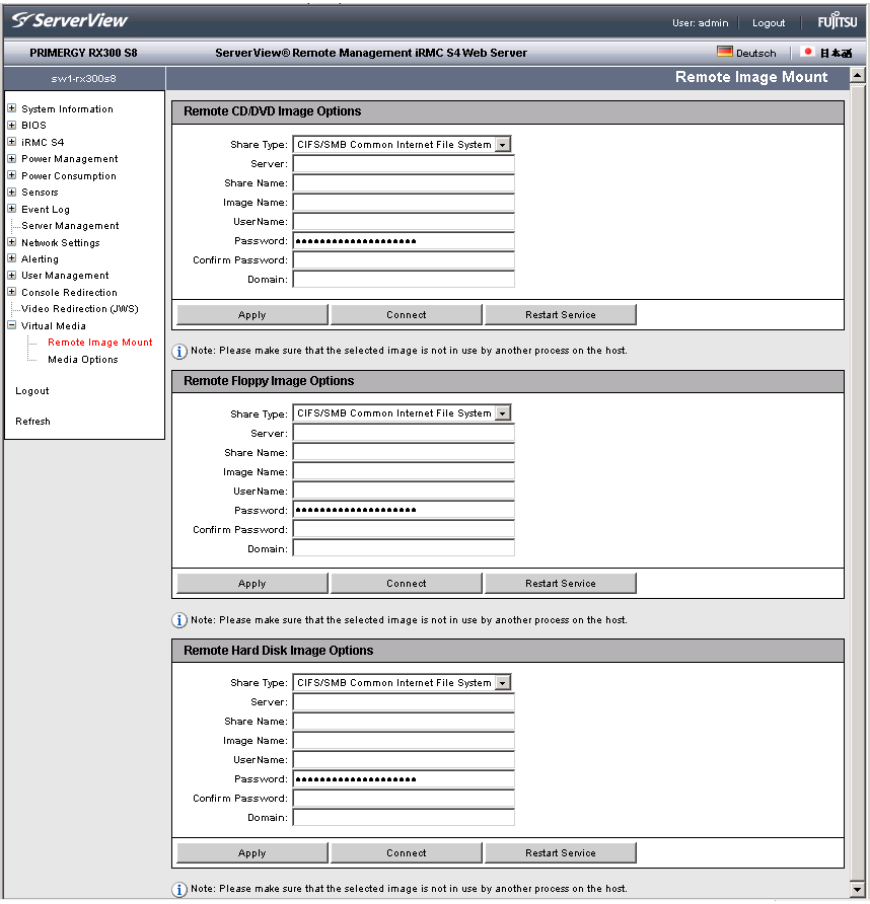


Figure 218: Remote Image Mount page

Remote CD/DVD Image Options / Remote Floppy Image Options / Remote Hard Disk Image Options

These groups each allow you to configure the options for mounting the remote images of the corresponding type and to establish / clear the connect to the remote image. Additionally, you can restart the *Remote Image Mount* service (e.g.in case of a failure).

Share Type

Share type of the network share where the ISO images are located.

The following modes are offered for selection:

CIFS/SMB Common Interface File System

Share type of the network share is CIFS SMB (Common Interface File System).

NFS Network File System

The virtual media is attached to the server only when a virtual media session is started.

Server

IP address or DNS name of the server hosting the remote images (remote image server for short).

Share Name

Name of the network share the remote image server belongs to.

Image Name

Name of / path to the remote image.

User Name

User name required for accessing the network share.

Password

Enter the password for the user.

Confirm Password

Reenter the password for confirmation.

Domain

Domain of the user.

Apply

Activates your settings.

Connect

Connects the remote image to the managed server.

Disconnect
Clears the remote image connection.

Restart Service
Restarts the Remote Image Mount service (e.g. in case of a failure).

Connecting the remote image to the managed server

Suppose you have configured the *Remote CD/DVD Image Options* as follows:

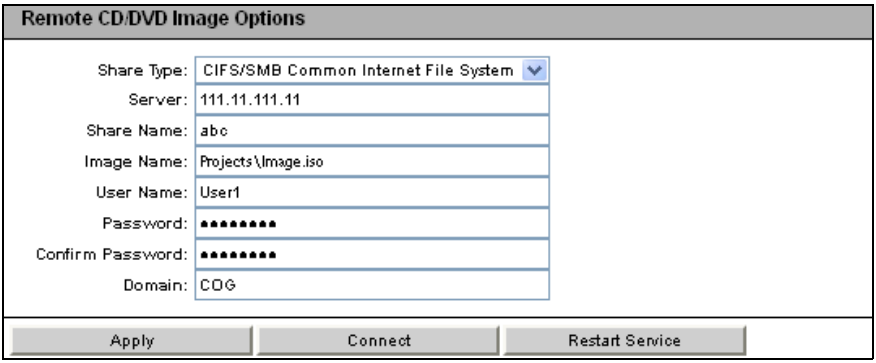


Figure 219: Remote CD/DVD Image Options are configured

To connect to the remote image to the managed server, proceed as follows:

- Click *Apply* to activate your settings.
- Click *Connect*.

  The *Remote CD/DVD Image Options* group is shown as follows, indicating that the remote image is now connected to the managed server:

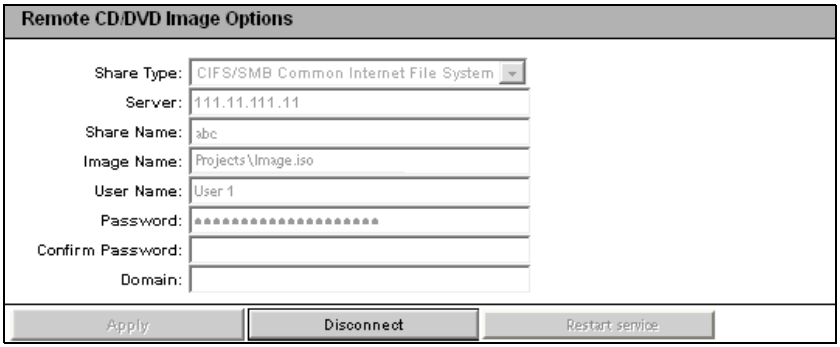


Figure 220: Remote CD/DVD Image Options

- To clear the connection to the remote image, click *Disconnect*.
- To restart the *Remote Image Mount* service (e.g. in case of a failure), click *Restart Service*.

7.18 Lifecycle Management

The embedded Lifecycle Management functionality (eLCM) of the iRMC allows you to configure and perform lifecycle management of a PRIMERGY server with a few mouse clicks centrally from the iRMC web interface without the need of handling physical devices.

eLCM provided by the iRMC comprises the following functions:

– eLCM update management

– eLCM image management

– eLCM health management

To use the eLCM functionality, you need a valid eLCM license key which is purchased together with the iRMC SD card. The SD card is used as the iRMC -related non-volatile mass data storage and is mounted in the iRMC -internal Linux file system. From the server side, files on the iRMC SD card may be read and written through the PCIe interface via HTI (High-speed Transfer Protocol). In particular, communication between the iRMC and the ServerView Agentless Service occurs via HTI.

The *Lifecycle Management* link contains links to the following pages:

– "Update Settings - Configuring general eLCM update settings" on page 340.

– "Online Update - Configuring the eLCM online update" on page 341.

– "Offline Update - Configuring the eLCM offline update" on page 346.

– "Custom Image - Handling custom images" on page 352.

– "PrimeCollect - Health management" on page 356.

The iRMC supports an SD card for non-volatile mass data storage. The SD card is mounted in the iRMC -internal Linux file system. From the server side, files on the iRMC SD card may be read and written through the PCIe interface via HTI.

In order to use the iRMC function *Lifecycle Management*, you require a license key (see page 176).

7.18.1 Update Settings - Configuring general eLCM update settings

The *Update Settings* page allows you to configure the options for the eLCM update repository.

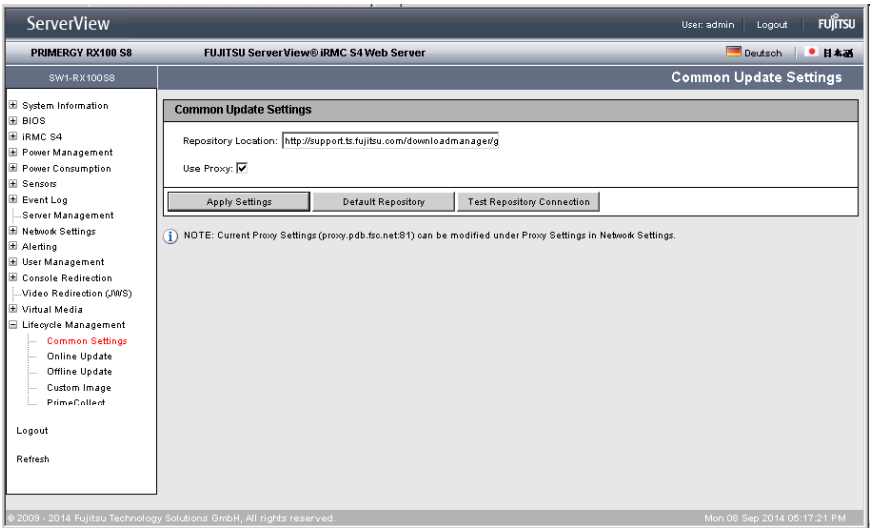


Figure 221: Common Update Settings page

Repository Location

URL of the update repository used for the eLCM update.
Default: *https://support.ts.fujitsu.com*

Use Proxy

Specifies whether a proxy server should be used. The proxy settings can be configured / changed in the *Network Settings -Proxy Settings* page (see page 262).

Apply Settings

Applies your settings.

Default Repository

Repository location is set to default (*https://support.ts.fujitsu.com*).

Test Repository Connection

Tests the connection to the repository.

7.18.2 Online Update - Configuring the eLCM online update

The *Online Update* page allows you to update BIOS and controller firmware while the server operating system is running. On Windows systems, it is also possible to update drivers supported by PSPs (PRIMERGY Support Packages, see the manual "Local System Update for PRIMERGY Server" for details).

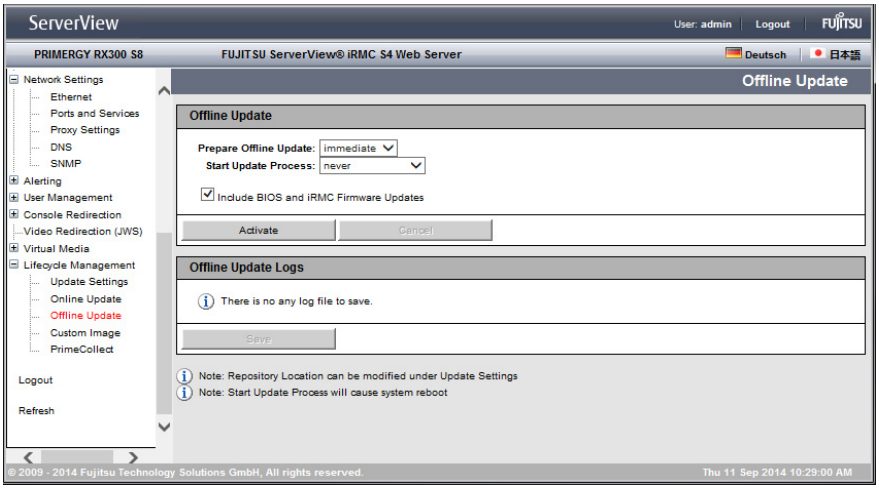


Figure 222: Online Update page

Starting an online update always comprises the following steps:

1. Performing the update check.
2. Starting the online update process.

Both steps, which are described in detail below, can be executed manually or scheduled.

Full Online update functionality is only available if the ServerView Agentless Service is running on the server operating system. Otherwise, only iRMC and/or BIOS firmware can be updated. The *System Information* group in the *System Overview* page informs you whether the ServerView Agentless service is available (see page 137).

The ServerView Agentless Service provides driver and firmware inventory data and finally installs the component driver and firmware updates on the managed server while the system is up and running.

For a more detailed description, see the manual "ServerView embedded Lifecycle Management (eLCM)"

Online Update - Configuring and starting the online update

The *Online Update* group allows you to configure and start both the update check and the online update itself.

Update settings cannot be changed while an update is being executed.

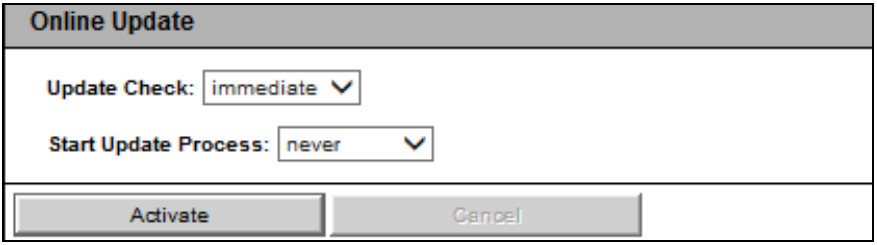


Figure 223: Online Update page - Online Update group

Update Check

Here you configure whether clicking *Activate* will start the update check immediately, at a fixed date, or periodically.

immediate

Starts the update check immediately.

daily

Starts the update check once a day at the specified time.

weekly

Starts the update check once a week at the specified day and time.

monthly

Starts the update check once a month at the specified day and time.

yearly

Starts the update check once a year at the specified date and time.

once only

Starts the update check at the specified date and time.

never

Never starts the update check.

Once the update check process has successfully completed, the *Available Updates* list is displayed in the *Online Update* group. There, you can select/deselect the components which you want to be updated.

Updates displayed with *Severity* "essential" cannot be deselected.

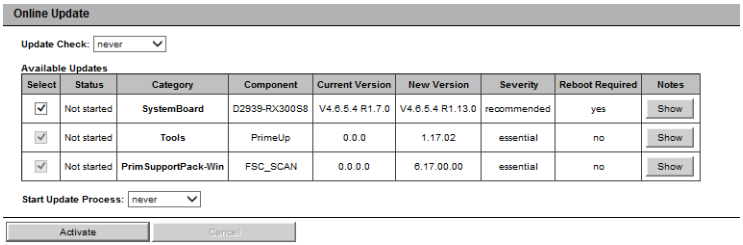


Figure 224: Online Update group - update check performed

Start Update Process

Here you configure whether clicking *Activate* will start the update process immediately, at a fixed date, or periodically.

immediate

Starts the update process immediately.

after check

Automatically starts an update process that directly follows an (immediately) initiated update check.

daily

Starts the update process once a day at the specified time.

weekly

Starts the update process once a week at the specified day and time.

monthly

Starts the update process once a month at the specified day and time.

yearly

Starts the update process once a year at the specified date and time.

once only

Starts the update process at the specified date and time.

never

Never starts the update process.

Activate

Starts an update check and/or the online update according to the settings configured under *Update Check* and *Start Update Process*:

Update Check	Start Update Process	Resulting behavior
immediate	after check	Update check is started immediately, Subsequently, update process is automatically started. All available update components are installed. No user interaction.
scheduled[1]	after check	Scheduled update check. All available update components are installed. No user interaction.
immediate	never	Update check is started immediately, Update process is not started automatically.
scheduled[1]	never	Scheduled update checks none of which is followed by an automatically started update process.
never	immediate	Based on the result of a separately performed update check, the update process is started immediately. This allows you to explicitly select/deselect one or more of the components offered for selection by the former update check before starting the update process.
never	scheduled[1]	Based on the result of a separately performed update check, the update process is started immediately. This allows you to explicitly select/deselect one or more of the components offered for selection by the former update check before starting the update process.

Table 9: Online update settings

[1] daily, weekly, monthly, yearly, once only

Cancel

Cancels the update check.

Online Update Logs

The *Online Update Logs* group informs you if a log file of the online update is available, and, if this applies, allows you to store the log file.

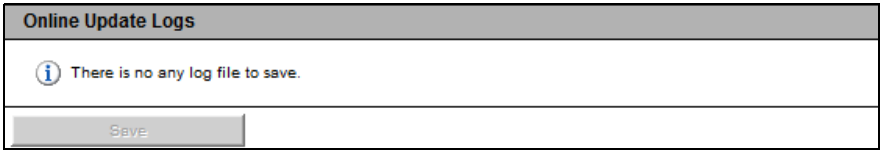


Figure 225: Online Update page - Online Update Logs

Save

Opens a confirmation dialog which offers to store the log file. The *Save* button is disabled if no log file is available.

7.18.3 Offline Update - Configuring the eLCM offline update

The *Offline Update* page allows you to update system components like network or storage controller firmware on the managed server. Additionally, you can install BIOS and iRMC firmware updates.

An offline update is the method of choice if no Agentless Service is running on the managed server, or if the Agentless Service does not support the server operating system. The *System Information* group in the *System Overview* page informs you whether the ServerView Agentless Service is available on the server (see page 137).

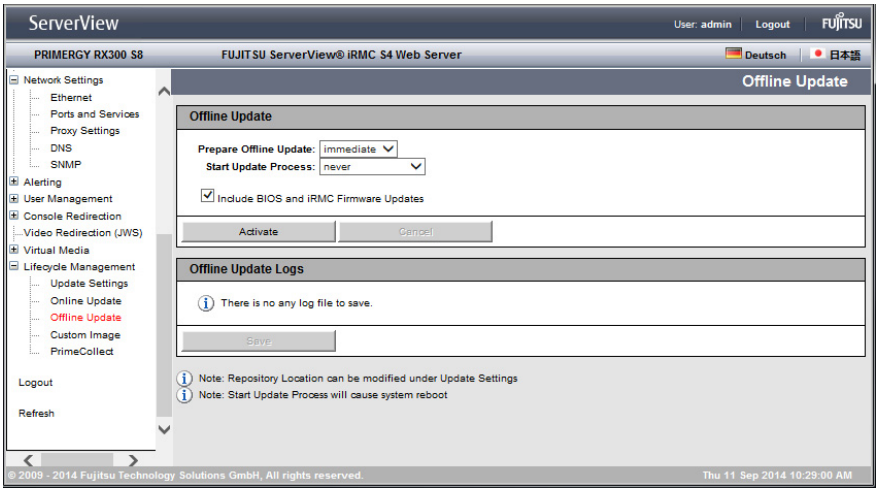


Figure 226: Offline Update page

Roughly speaking, the offline update comprises the following steps which are processed automatically:

1. The iRMC downloads all necessary files (in particular the eLCM offline update manager, which is a slim version of the ServerView Update Manager Express) and the local update repository onto the iRMC SD card.
2. The iRMC creates a bootable CD ROM image from these components and mounts it as a virtual CD ROM device.

3. The iRMC shuts down the managed server and reboots the system from the mounted CD ROM device.
4. The eLCM offline update manager, which is a slim version of the ServerView Update Manager Express, installs the firmware updates.

For a more detailed description, see the manual "ServerView embedded Lifecycle Management (eLCM)".

Starting an offline update always comprises the following steps:

1. Preparing the offline update.
2. Starting the offline update process.

Both steps, which are described in detail below, can be executed manually or scheduled.

Offline Update - preparing and starting the offline update

The *Offline Update* group allows you to prepare and start the offline update process.

Update settings cannot be changed while an update is being executed.

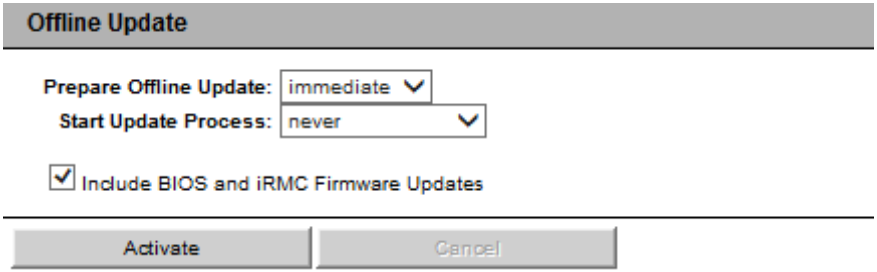


Figure 227: Offline Update page - Offline Update group

Prepare Offline Update

Prepares the offline update.

Preparing the offline update includes the following activities which are automatically performed by the iRMC:

- Downloading from the latest firmware update packages for system components, iRMC firmware and BIOS to the iRMC.
- Creating a system-specific local copy of the *Update-DVD.iso*. Only components specific for the managed server are regarded.

  This ISO image also contains an XML-File that defines the tasks for the update process. This file is called UserProfile.xml.

Here you configure whether clicking *Activate* will start preparing the offline update process immediately, automatically at a fixed date, or periodically.

immediate

Prepares the update immediately.

daily

Prepares the update once a day at the specified time.

weekly

Prepares the update once a week at the specified day and time.

monthly

Prepares the update process once a month at the specified day and time.

yearly

Prepares the update once a year at the specified date and time.

once only

Prepares the update at the specified date and time.

never

Never starts the update process.

Start Update Process

Here you configure whether clicking *Activate* will start the update check immediately, automatically at a fixed date, or periodically.

immediate

Starts the update process immediately.

after preparation
: Automatically starts an update process that directly follows an (immediately) initiated update preparation.

daily
: Starts the update process once a day at the specified time.

weekly
: Starts the update process once a week at the specified day and time.

monthly
: Starts the update process once a month at the specified day and time.

yearly
: Starts the update process once a year at the specified date and time.

once only
: Starts the update process at the specified date and time.

never
: Never starts the update process.

Include BIOS and iRMC Firmware Updates

This option affects the Prepare Offline update process.

Specifies whether the UserProfile.xml includes/excludes the BIOS and iRMC Firmware tasks on prepare offline update. So the ISO image always contains the update files, but the update tasks are either included or excluded.

Activate

Starts the preparation and/or the offline update according to the settings configured under *Prepare Offline Update* and *Start Update Process*:

Prepare Offline update	Start Update Process[1]	Resulting behavior
immediate	never	Preparing the offline update is started immediately, Update process is not started automatically.
immediate	after preparation	Preparing the offline update is started immediately, Subsequently, update process is automatically started. No user interaction.
scheduled[2]	never	Scheduled preparation of the offline update is started immediately, Update process is not started automatically.
scheduled[2]	after preparation	Scheduled preparation of the update in combination with subsequently started update process. All available update components are installed. No user interaction.
never	immediate	The update process is started immediately. This requires that an update iso-image made available by a former update preparation is already available on the iRMC.
never	scheduled[2]	The update process is started in a scheduled manner. This requires that an update iso-image made available by a former update preparation is already available on the iRMC.

Table 10: Offline update settings

[1] After update process is started, the managed server is shut down. The eLCM Offline Update Manager is started and performs the update.

[2] daily, weekly, monthly, yearly, once only

Cancel

Cancels preparing / executing the offline update. *Cancel* only works as long as the download has not started. Once the download is started, the *Cancel* button is disabled.

Offline Update Logs

The *Offline Update Logs* group informs you if a log file related to the offline update is available, and, if this applies, allows you to store the log file.

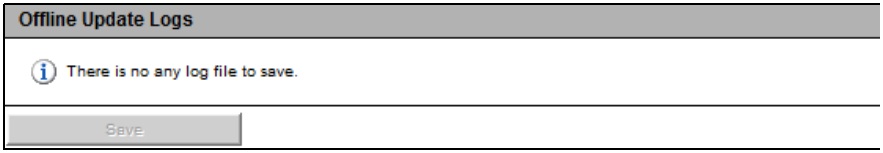


Figure 228: Online Update page - Online Update Logs

Save

Opens a confirmation dialog which offers to store the log file. The *Save* button is disabled if no log file is available.

7.18.4 Custom Image - Handling custom images

The *Custom Image* page allows you to specify a URL from which you can download ISO images onto the iRMC SD card. The download itself can be initiated manually or scheduled by a timer. The downloaded images are subsequently displayed for selection.

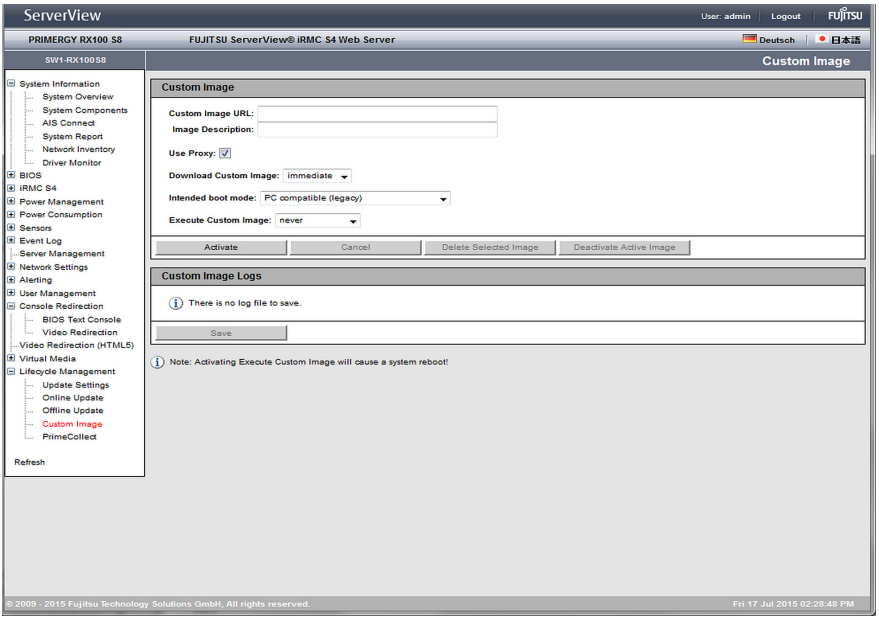


Figure 229: Custom Image page

Custom Image URL

Here you can specify the URL from which ISO images should be downloaded onto the iRMC.

Image Description

Here you can enter a textual description of the image.

Download Custom Image

Here you configure whether clicking *Activate* will start downloading the custom image immediately, automatically at a fixed date, or periodically.

immediate

Downloads the custom image immediately.

once only

Downloads the custom image at the specified date and time.

never

Never downloads the custom image.

Intended Boot Mode

Specifies the initial intended boot mode that will be assigned to a newly downloaded ISO image. If you select an automatically triggered boot (e.g. “after download”, “daily”, “weekly”), this will be the used boot mode. In the *Downloaded Ccustom* Image list there is a new column named Intended boot mode.

– PC compatible (legacy)

– Extensible Firmware Interface Boot (EFI)

Execute Custom Image

Here you configure whether clicking *Activate* will start activating the custom image immediately, automatically at a fixed date, or periodically.

after download

Automatically executes the custom image automatically after an (immediately) initiated download.

immediate

Executes the custom image immediately.

daily

Executes the custom image once a day at the specified time.

weekly

Executes the custom image once a week at the specified day and time.

monthly

Executes the custom image once a month at the specified day and time.

yearly

Executes the custom image once a year at the specified date and time.

once only

Executes the custom image at the specified date and time.

never

Never executes the custom image.

Activate

Starts the download and/or the execution of the selected custom image according to the settings configured under *Download Custom Image* and *Execute Custom Image*:

Download Custom Image	Execute Custom Image	Resulting behavior
immediate	never	Download of the custom image is started immediately. Custom image is not executed automatically.
scheduled[1]	never	Scheduled download of the custom image is enabled immediately. Custom image is not executed automatically.
immediate	after download	Download of the custom image is started immediately. Subsequently, execution of the custom image is automatically started. No user interaction.
scheduled[1]	after download	Scheduled download of the custom image in combination with subsequent automatically started execution. No user interaction.
never	immediate	Execution of the custom image is started immediately. This requires that a custom image is already available on the iRMC SD card and offered for selection.
never	scheduled[1]	Execution of the custom image is started in a scheduled manner. This requires that a custom image is already available on the iRMC SD card and offered for selection.

Table 11: Custom image settings

[1] daily, weekly, monthly, yearly, once only

Cancel

Cancels preparing the download. *Cancel* only works as long as the download has not started. Once the download is started, the *Cancel* button is disabled.

Delete Selected Image

Deletes the selected image(s) from the iRMC SD card.

Unmount Selected Image

Unmounts the selected image.

Custom Image Logs

The *Custom Image Logs* group informs you if a log file related to the custom image is available, and, if this applies, allows you to store the log file.

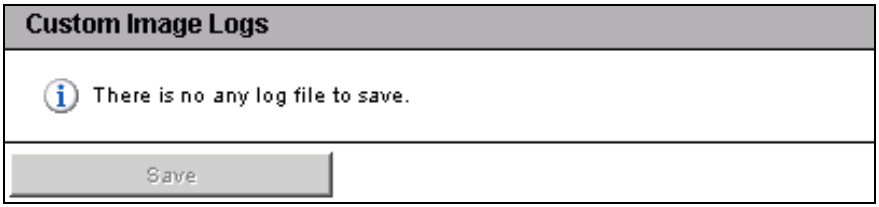


Figure 230: Online Update page - Online Update Logs

Save

Opens a confirmation dialog which offers to store the log file. The *Save* button is disabled if no log file is available.

7.18.5 PrimeCollect - Health management

The *PrimeCollect* page allows you to store several PrimeCollect archives on the iRMC SD card. Additionally, you can define one special “reference image” which will not be overwritten by the ring buffer principle.

Out-of-band eLCM provided by the iRMC extends and enhances the standard PrimeCollect functionality and usability as follows:

– Creating PrimeCollect archives automatically and scheduled.

– Storing PrimeCollect archive files on the iRMC SD card. In particular, you can define one special “reference image” which will not be overwritten by the ring buffer principle.

– Maintaining a history of PrimeCollect archives.

– Transferring PrimeCollect archives to another server via management LAN or AIS Connect.

– Downloading PrimeCollect archive to the local computer.

PrimeCollect archive file creating is based on the communication between the iRMC and the ServerView Agentless Service. The *System Information* group in the *System Overview* page informs you whether the ServerView Agentless Service is available on the server (see page 137).

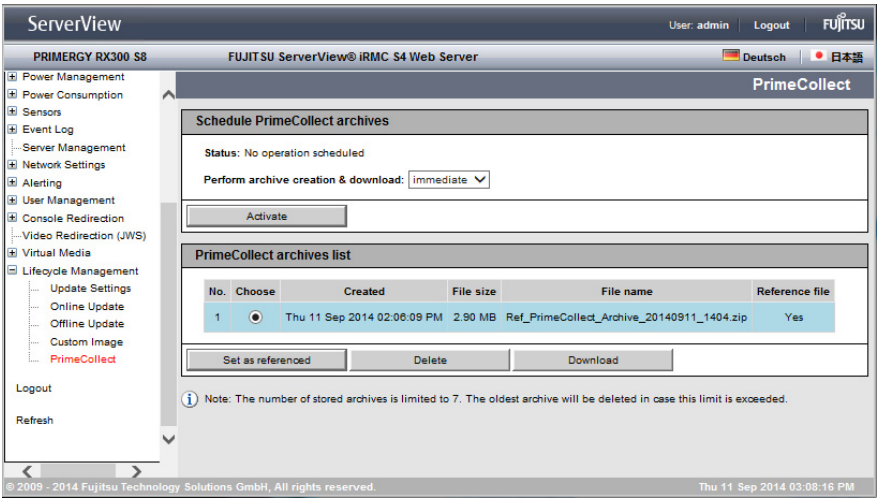


Figure 231: PrimeCollect page - Schedule PrimeCollect archives

Schedule PrimeCollect archives

The *Schedule PrimeCollect archives* group allows you to configure archive creation and download.

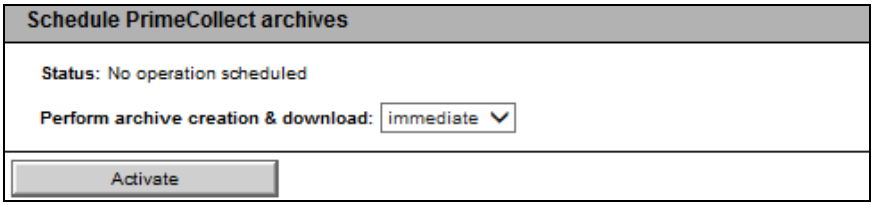


Figure 232: PrimeCollect page

Status

Displays the current status of the archive creation and update process.

Perform archive creation & download

Here you configure whether clicking *Activate* will start activating the custom image immediately, automatically at a fixed date, or periodically.

immediate

Performs archive creation and download immediately.

daily

Performs archive creation and download once a day at the specified time.

weekly

Performs archive creation and download once a week at the specified day and time.

monthly

Performs archive creation and download once a month at the specified day and time.

yearly

Performs archive creation and download once a year at the specified date.

once only

Performs archive creation and download at the specified date.

never

Never performs archive creation and download.

Activate / Deactivate

Enables / disables the configuration:

– Clicking *Activate* starts archive creation and download corresponding to the settings configured under *Perform archive creation & download*

– Clicking *Deactivate* stops currently processed archive creation and download if the creation process has not started yet.

PrimeCollect archives list

The *PrimeCollect archives list* displays the list of available PrimeCollect archives.

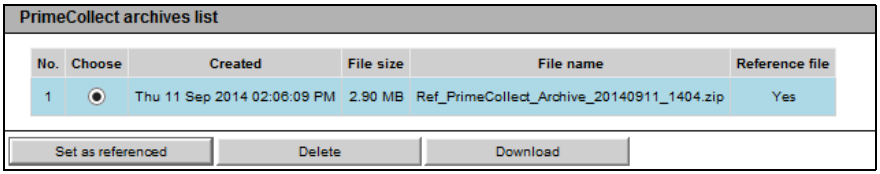


Figure 233: PrimeCollect page - PrimeCollect archives list

Set as referenced

Marks the currently selected archive as the reference archive. If the list contains only one archive, this archive will automatically serve as the reference archive.

Delete

Deletes the selected archive from the list.

Download

Opens a file browser dialog allowing you open or save the selected archive.

8 iRMC S4 via Telnet/SSH (Remote Manager)

A Telnet-based interface is available for the iRMC. This is known as the Remote Manager. You can call the Remote Manager over any Telnet/SSH client.

The iRMC supports secure connections over SSH (**S**ecure **Sh**ell). The Remote Manager interface is identical for Telnet and SSH connections. In principle, any Telnet/SSH client that interprets VT100 sequences can be used to access the iRMC. It is nevertheless recommended that the iRMC S4 web interface or the ServerView Remote Management Front end (referred to below simply as the Remote Management Front end) be used.

This chapter describes operation of the iRMC from the Remote Manager and the various functions in detail. The end of the chapter also provides a brief overview of SMASH CLP.

8.1 Requirements on the managed server

Access via Telnet must be activated for the iRMC (see the section "Ports and Network Services - Configuring ports and network services" on page 258).

Access via the Telnet protocol is deactivated by default for security reasons, as passwords are transmitted in plain text.

Since the ServerView Operations Manager does not know the value of the management port, the Remote Management Front end works with the default value.

Since a connection is not automatically established when the Remote Management Front end is started, you can correct any nonstandard value for the management port after the Remote Management Front end has been started.

8.2 Operating Remote Manager

Operation of Remote view is described on the basis of the example in figure 234, which shows an excerpt from the main menu of the Remote Manager.

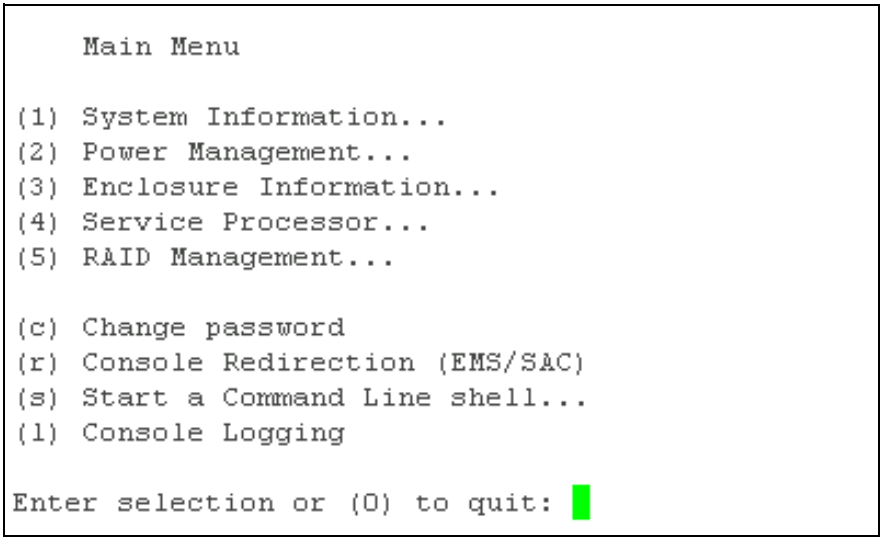


Figure 234: Operating the Remote Manager

- Select the required menu item by entering the number or letter which precedes the menu item, e.g. “c” for “Change password”.

  Functions that the user is not permitted to use are indicated by a dash (-) and functions that are not available are indicated by an asterisk (*).

- Press 0 or the key combination Ctrl D to close the Remote Manager. An appropriate event will be written to the event log.

8.3 Overview of menus

The Remote Manager menu for the iRMC has the following structure:

- **System Information**
  - View Chassis Information
  - View Mainboard Information
  - View OS and SNMP Information
  - Set ASSET Tag
- **Power Management**
  - Immediate Power Off
  - Immediate Reset
  - Power Cycle
  - Power on
  - Graceful Power Off (Shutdown)
  - Graceful Reset (Reboot)
  - Raise NMI (via iRMC)
- **Enclosure Information**
  - System Eventlog
    - View System Eventlog (text, newest first)
    - View System Eventlog (text, oldest first)
    - Dump System Eventlog (raw, newest first)
    - Dump System Eventlog (raw, oldest first)
    - View System Eventlog Information
    - Clear System Eventlog

  - Internal Eventlog
    - View Internal Eventlog (text, newest last)
    - Dump Internal Eventlog (raw, newest last)
    - View Internal Eventlog Information
    - Clear Internal Eventlog
    - Change Internal Eventlog mode
  - Temperature
  - Voltages/Current
  - Fans
  - Power Supplies
  - Memory Sensor
  - Door Lock
  - CPU Sensors
  - Component Status (Lightpath)
  - List All Sensors
- **Service Processor**
  - Configure IP Parameters
  - List IP Parameters
  - Toggle Identify LED
  - Reset iRMC (Warm reset)
  - Reset iRMC (Cold reset)
- **RAID Management**
  - Controller information
  - Physical device information
  - Logical device information
  - Array configuration information
  - BBU status

- **Change password**
- **Console Redirection (EMS/SAC)**
- **Start a Command Line shell**
- **Console Logging**

8.4 Logging in

When connecting to the iRMC, you are required to enter your login credentials (user name and password). As soon as a connection to the iRMC S4 has been established, the main menu window of the Remote Manager (Telnet/SSH window) is displayed at the terminal client at the remote workstation.

Depending on whether ServerView agents have already been started at some point on the system, the main window is shown with or without system information.

When logging in over an SSH connection: If the host key of the managed server is not yet registered at the remote workstation, the SSH client issues a security alert with suggestions on how to proceed.

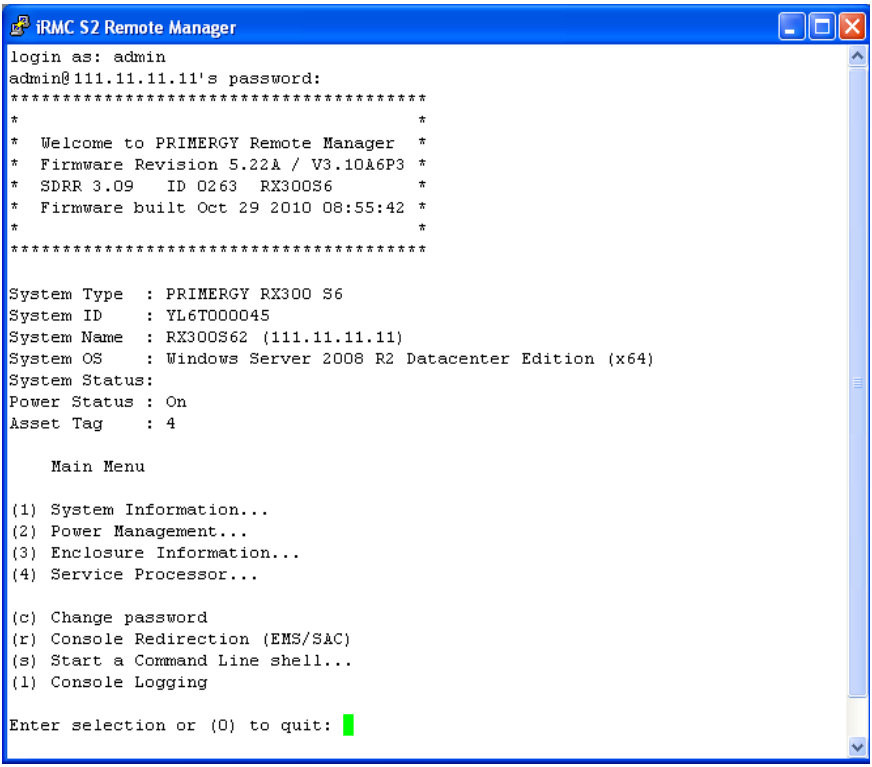

iRMC S2 Remote Manager
login as: admin
admin@111.11.11.11's password:
*****
* Welcome to PRIMERGY Remote Manager *
* Firmware Revision 5.22A / V3.10A6P3 *
* SDRR 3.09 ID 0263 RX300S6 *
* Firmware built Oct 29 2010 08:55:42 *
*****
System Type : PRIMERGY RX300 S6
System ID : YL6T000045
System Name : RX300S62 (111.11.11.11)
System OS : Windows Server 2008 R2 Datacenter Edition (x64)
System Status:
Power Status : On
Asset Tag : 4
Main Menu
(1) System Information...
(2) Power Management...
(3) Enclosure Information...
(4) Service Processor...
(c) Change password
(r) Console Redirection (EMS/SAC)
(s) Start a Command Line shell...
(l) Console Logging
Enter selection or (0) to quit:

Figure 235: Remote Manager: Main menu window (with system information)

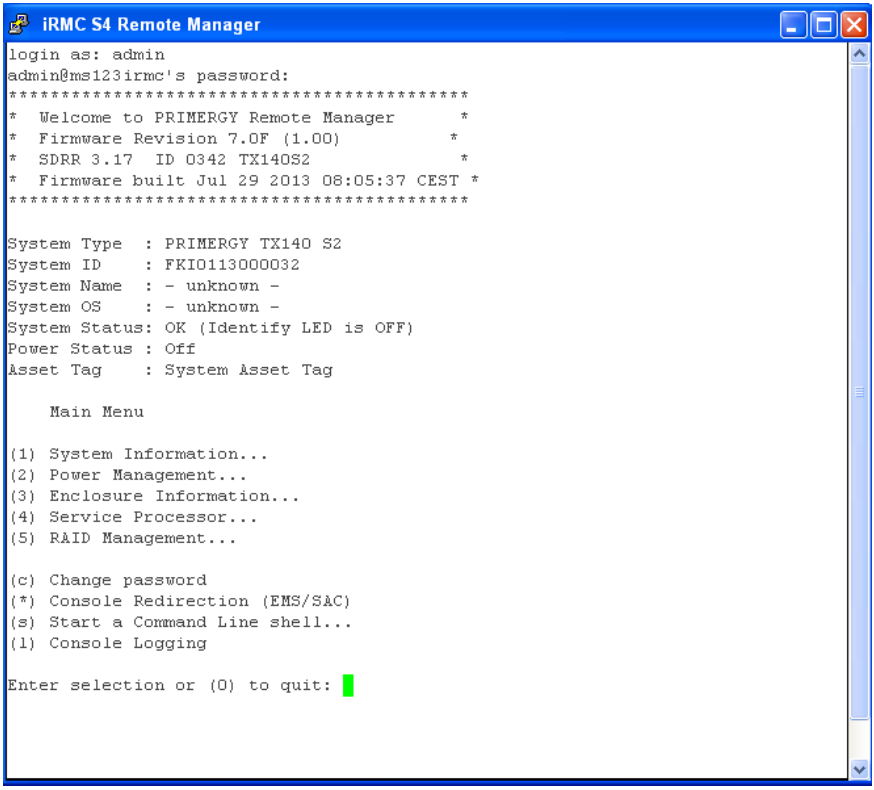

iRMC S4 Remote Manager
login as: admin
admin@ms123irmc's password:
****
* Welcome to PRIMERGY Remote Manager *
* Firmware Revision 7.0F (1.00) *
* SDRR 3.17 ID 0342 TX140S2 *
* Firmware built Jul 29 2013 08:05:37 CEST *
****
System Type : PRIMERGY TX140 S2
System ID : FKIO113000032
System Name : - unknown -
System OS : - unknown -
System Status: OK (Identify LED is OFF)
Power Status : Off
Asset Tag : System Asset Tag
Main Menu
(1) System Information...
(2) Power Management...
(3) Enclosure Information...
(4) Service Processor...
(5) RAID Management...
(c) Change password
(*) Console Redirection (EMS/SAC)
(s) Start a Command Line shell...
(l) Console Logging
Enter selection or (0) to quit:

Figure 236: Remote Manager: Main menu window (without system information)

The Remote Manager window contains information on the affected system. This information identifies the server and indicates its operating status (Power Status). Some details (e.g. the System Name) are only shown for servers and only if the server is configured appropriately.

- In order to be able to use the Remote Manager, you must log in with a user name and a password.

  Then an appropriate event will be written to the Event log and the relevant main menu of the Remote Manager displayed (see section "Main menu of the Remote Manager" on page 367).

  You can terminate the login process at any time using Ctrl D.

8.5 Main menu of the Remote Manager

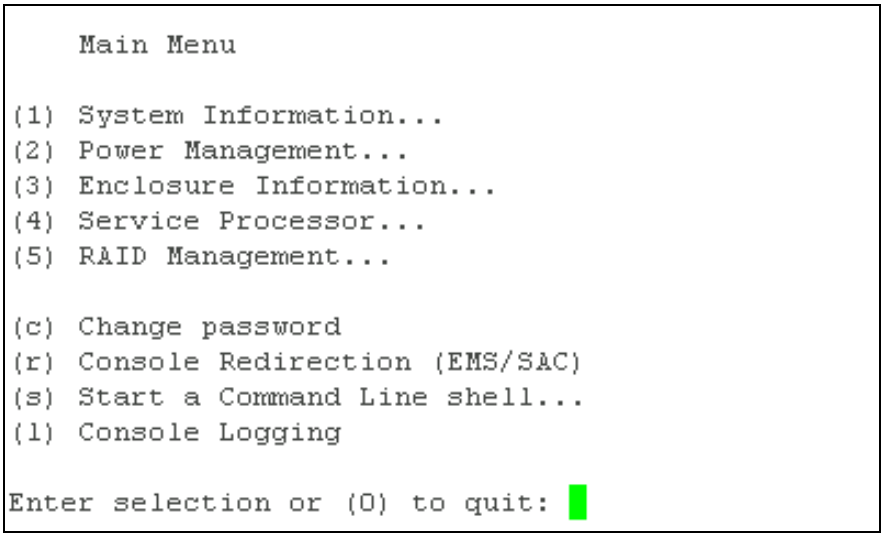


Figure 237: Remote Manager: Main menu

The main menu of the Remote Manager provides the following functions:

System Information...	View information on the managed server and set the Asset Tag (see section "System Information - Information on the managed server" on page 371).
Power Management...	Power the server up or down. (see section "Power Management" on page 373).
Enclosure Information...	Request information on the current system status, e.g. check error and event messages from the error log and event log (temperature, fan, etc.) (see section "Enclosure Information - System event log and status of the sensors" on page 374).

Table 12: Main menu of the Remote Manager

Service Processor...	Configure the iRMC (e.g. update firmware or change IP address) (see section "Service processor - IP parameters, identification LED and iRMC S4 reset" on page 378).
RAID Managerment..	Information on RAID controllers, physical and logical devices, array configuration and BBU status. (see section "RAID Management" on page 379).
Change password	Change the password (see section "Change the password" on page 371).
Console Redirection (EMS/SAC)	Text console redirection (see section "Console Redirection (EMS/SAC) - Start text console redirection" on page 380).
Start a Command Line shell...	Start a command line shell (see section "Start a Command Line shell... - Start a SMASH CLP shell" on page 380).
Console Logging	Redirect output of messages to the text console (see section "Console Logging - Redirect message output to the text console (serial)" on page 381).

Table 12: Main menu of the Remote Manager

8.6 Required user permissions

In table 13 is given an overview of the user permissions which are required in order to use the individual Remote Manager functions.

Remote Manager menu items	Permitted with IPMI privilege level				Required permission			
	OEM	Administrator	Operator	User	Configure User Accounts	Configure iRMC Settings	Video Redirection Enabled	Remote Storage Enabled
View *System Information...*	X	X	X	X				
View Chassis / Mainboard, / OS Information						X		
Set ASSET Tag[1)]						X		
Set System Name [1)]						X		
Set System Operating System Information[1)]						X		
Set System Description[1)]						X		
Set System Location Information (SNMP)[1)]						X		
Set System Contact Information (SNMP)[1)]						X		
Power Management...	X	X	X					
View *Enclosure Information*	X	X	X	X				
System Eventlog - View/Dump System Eventlog	X	X	X	X				
System Eventlog - Clear System Eventlog	X	X	X					
Internal Eventlog - View/Dump Internal Eventlog	X	X	X	X				
Internal Eventlog - Clear Internal Eventlog	X	X	X	X				
Sensor overviews (Temperature, Fans ...)	X	X	X	X				
View *Service Processor...*	X	X	X	X				
Service Processor... - List IP Parameters						X		
Service Processor... - Configure IP Parameters						X		

Table 13: Permissions to use the Remote Manager menus

Remote Manager menu items	Permitted with IPMI privilege level				Required permission			
	OEM	Administrator	Operator	User	Configure User Accounts	Configure iRMC Settings	Video Redirection Enabled	Remote Storage Enabled
Service Processor... - Toggle Identify LED	X	X	X	X				
Service Proc. ... - Reset iRMC S4 (warm/cold reset)	X	X						
View *RAID Management*.[2)]	X	X						
View Controller information[2)]	X	X						
View physical device information[2)]	X	X						
View logical device information[2)]	X	X						
View array configuration information[2)]	X	X						
View BBU status [2)]	X	X						
Change Password					X			
Console Redirection (EMS/SAC)	X	X	X					
Start a command Line shell...	X	X	X	X				
Console Logging	X	X	X					

[1)] Action is only possible if no agents are running.
[2)] System-dependent feature

Table 13: Permissions to use the Remote Manager menus

8.7 Change the password

The *Change password* menu item allows a user with the privilege *Configure User Accounts* (see page 62) to change their own password or the passwords of other users.

8.8 System Information - Information on the managed server

The following menu appears if you choose *System Information...* from the main menu:

```
    System Information Menu

(1) View Chassis Information
(2) View Mainboard Information
(3) View OS and SNMP Information

(4) Set ASSET Tag
(*) Set System Name
(*) Set System Operating System Information
(*) Set System Description
(*) Set System Location Information (SNMP)
(*) Set System Contact Information (SNMP)

Enter selection or (0) to quit:
```

Figure 238: Remote Manager: System Information menu

The sub menu contains the following functions:

View Chassis Information	Information on the chassis of the managed server and its product data.
View Mainboard Information	Information on the main board of the managed server and its product data.
View OS and SNMP Information	Information on the operating system and the ServerView version of the managed server and on the SNMP settings.

Table 14: System Information menu

Set ASSET Tag	Sets a customer-specific asset tag for the managed server.

Table 14: System Information menu

8.9 Power Management

The following menu appears if you choose *Power Management...* from the main menu:

```
    Power Management Menu

(1) Immediate Power Off
(2) Immediate Reset
(3) Power Cycle
(*) Power On

(5) Graceful  Power Off (Shutdown)
(6) Graceful  Reset     (Reboot)

Enter selection or (0) to quit:
```

Figure 239: Remote Manager: Power Management menu

The sub menu contains the following functions:

Immediate Power Off	Powers the server down, regardless of the status of the operating system.
Immediate Reset	Completely restarts the server (cold start), regardless of the status of the operating system.
Power Cycle	Powers the server down completely and then powers it up again after a configured period.
Power On	Switches the server on.
Graceful Power Off (Shutdown)	Graceful shutdown and power off. This menu item is only available if ServerView agents are installed and signed onto the iRMC S4 as “Connected”.
Graceful Reset (Reboot)	Graceful shutdown and reboot. This menu item is only available if ServerView agents are installed and signed onto the iRMC S4 as “Connected”.

Table 15: Power Management menu

8.10 Enclosure Information - System event log and status of the sensors

The following menu appears if you choose *Enclosure Information...* from the main menu:

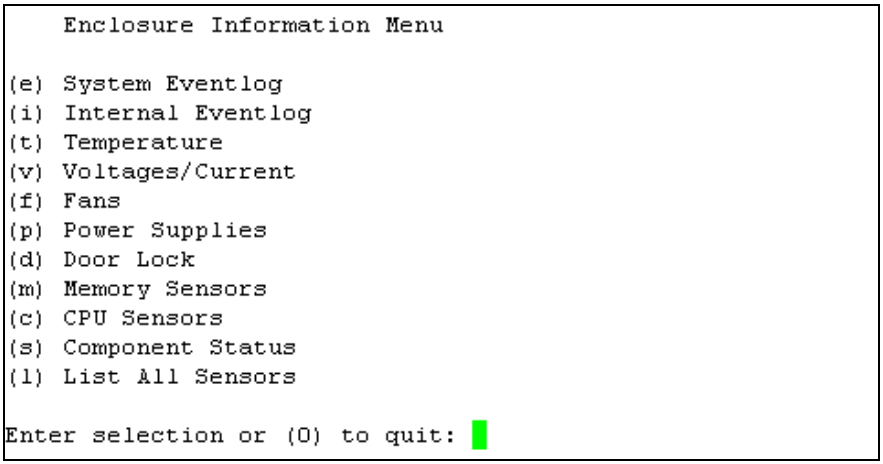


Figure 240: Remote Manager: Enclosure Information menu

The sub menu contains the following functions:

System Eventlog	Call the *System Eventlog* menu (see the section "System Eventlog" on page 376).
Internal Eventlog	Call the *internal Eventlog* menu (see the section "Internal Eventlog" on page 377).
Temperature	Display information on the temperature sensors and their status.
Voltages/Current	Display information on the voltage and current sensors and their status.
Fans	Display information on the fans and their status.
Power Supplies	Display information on the power supplies and their redundancy status.
Door Lock	Display information on whether the front panel or housing are open.
Memory Sensors	Display information on the memory statuses.
CPU Sensors	Localize the processors of the server.
Component Status	Display detailed information on all sensors that have a PRIMERGY diagnostic LED.
List All Sensors	Display detailed information on all sensors.

Table 16: Enclosure Information menu

System Eventlog

The following menu appears if you select *System Eventlog* from the *Enclosure Information...* sub menu:

```
    System Eventlog Menu

(1) View System Eventlog (text, newest first)
(2) View System Eventlog (text, oldest first)
(3) Dump System Eventlog (raw, newest first)
(4) Dump System Eventlog (raw, oldest first)

(5) View System Eventlog Information
(6) Clear System Eventlog

Enter selection or (0) to quit:
```

Figure 241: Remote Manager: System Eventlog menu

The sub menu contains the following functions:

View System Eventlog (text, newest first)	The contents of the System Event log are output to screen in a readable form and in chronological order (the most recent entry first).
View System Eventlog (text, oldest first)	The contents of the System Event log are output to screen in a readable form and in reverse chronological order (the oldest entry first).
Dump System Eventlog (raw, newest first)	The contents of the System Event log are dumped in chronological order (the most recent entry first).
Dump System Eventlog (raw, oldest first)	The contents of the System Event log are dumped in reverse chronological order (the oldest entry first).
View System Eventlog Information	Display information on the System Event log.
Clear System Eventlog	Clear the contents of the System Event log.
Change System Eventlog mode	Changes the buffer mode of the System Event Log from *Ring Buffer* mode to *Linear Buffer* mode and vice versa.

Table 17: System Eventlog menu

Internal Eventlog

The following menu appears if you select *Internal Eventlog* from the *Enclosure Information...* sub menu:

```
    Internal Eventlog Menu

(1) View Internal Eventlog (text, newest last)
(2) Dump Internal Eventlog (raw, newest last)
(3) View Internal Eventlog Information
(4) Clear Internal Eventlog
(5) Change Internal Eventlog mode

Enter selection or (0) to quit:
```

Figure 242: Remote Manager: Internal Eventlog menu

The sub menu contains the following functions:

View Internal Eventlog (text, newest last)	The contents of the internal event log are output to screen in a readable form and in reverse chronological order (the most recent entry last).
Dump Internal Eventlog (raw, newest last)	The contents of the internal event log are dumped in reverse chronological order (the most recent entry last).
View Internal Eventlog Information	Display information on the internal event log.
Clear Internal Eventlog	Clear the contents of the internal event log.
Change Internal Eventlog mode	Changes the buffer mode of the internal event log from *Ring Buffer* mode to *Linear Buffer* mode and vice versa.

Table 18: Internal Eventlog menu

8.11 Service processor - IP parameters, identification LED and iRMC S4 reset

The following menu appears if you choose *Service Processor...* from the main menu:

```
    Service Processor Menu

(1) Configure IP Parameters
(2) List IP Parameters

(3) Toggle Identify LED

(4) Reset iRMC S4 (Warm reset)
(5) Reset iRMC S4 (Cold reset)

Enter selection or (0) to quit:
```

Figure 243: Remote Manager: Service Processor menu

The sub menu contains the following functions:

Configure IP Parameters	Configure the IPv4 / IPv6 address settings of the iRMC in a guided dialog. Please refer to section "Network Interface Settings - Configure Ethernet settings on the iRMC" on page 251 for details in the individual settings.
List IP Parameters	Display the IP settings.
Toggle Identify LED	Switch the PRIMERGY identification LED on/off.
Reset iRMC S4 (Warm reset)	Reset the iRMC. The connection is closed. Only the interfaces are re-initialized.
Reset iRMC S4 (Cold reset)	Reset the iRMC. The connection is closed. The entire iRMC is re-initialized.

Table 19: Service Processor menu

It is recommended that you reboot the server after a *Reset iRMC S4 (Cold Reset)* or *Reset iRMC S4 (Warm Reset)* (see page 201).

8.12 RAID Management

The following menu appears if you choose *RAID Management...* from the main menu:

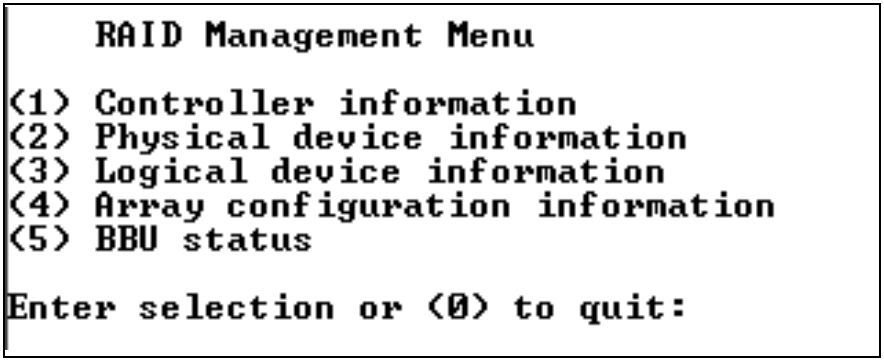


Figure 244: Remote Manager: Service Processor menu

The sub menu contains the following functions:

Controller Information	Provides information on each RAID controller on the managed server.
Physical Device Information	Provides information on each RAID physical disk on the managed server.
Logical Device Information	Provides information on the each RAID logical drives on the managed server.
Array configuration information	Provides information on array configuration.
BBU status	Provides information on status of the battery backup units (BBU).

Table 20: Service Processor menu

8.13 Console Redirection (EMS/SAC) - Start text console redirection

You can start console redirection with the *Console Redirection (EMS/SAC)* item from the main menu.

Text-based console redirection only works over the LAN with Serial 1.

If console redirection is also to be used while the operating system is running, the *Serial 1 Multiplexer* must be set to *System*.

Use the keyboard shortcut "<ESC>(" or "~." (tilde dot) to exit the text console.

It is possible that only one of these options will work, depending on the type of PRIMERGY server used.

8.14 Start a Command Line shell... - Start a SMASH CLP shell

Start a Command Line shell... in the main menu allows you to start a SMASH CLP shell. SMASH CLP stands for "**S**ystems **M**anagement **A**rchitecture for **S**erver **H**ardware **C**ommand **L**ine **P**rotocol". This protocol permits a Telnet- or SSH-based connection between the management station and the managed server. For further details on SMASH CLP, please refer to section "Command Line Protocol (CLP)" on page 383.

When you select *(s) Start a Command Line shell...* from the main menu, the following window appears:

```
    Shell Menu

(1) Start SMASH CLP shell...


Enter selection or (0) to quit:
```

Figure 245: Remote Manager: Start a SMASH CLP shell... menu

- Choose *(1) Start a SMASH CLP shell...* to start the SMASH CLP shell.

8.15 Console Logging - Redirect message output to the text console (serial)

The *Console Logging* item in the main menu allows you to redirect message output (logging) to the text console (serial interface).

When you select *(l) Console Logging* from the main menu, the following window appears:

```
    Console Logging Menu

(1) Change Logging Run state
(2) Clear Console Logging buffer
(3) Replay Console (Fast mode)
(4) Replay Console (Continuous mode)

Enter selection or (0) to quit:
```

Figure 246: Remote Manager: Console Logging menu

The sub menu contains the following functions:

Change Logging Run state	Show and change the logging run state. For a more detailed description, see "Console Logging Run State Menu" on page 382
Clear Console Logging buffer	Clear the console logging buffer.
Replay Console (Fast mode)	Show the console log (in fast mode)
Replay Console (Continuous mode)	Show the console log (in continuous mode)

Table 21: Console Logging menu

Console Logging Run State Menu

```
    Console Logging Run State Menu
    State: STOPPED (Normal Mode)

(r) Start Console Logging
(*) Stop Console Logging

(t) Toggle to Text Mode
(*) Toggle to Normal Mode

Enter selection or (0) to quit:
```

Figure 247: Remote Manager: Console Logging Run State menu

The *Console Logging Run State Menu* provides the following functions:

Start Console Logging	Start output of messages to the text console.
Stop Console Logging	Stop output of messages to the text console.
Toggle to Text Mode	Switch to text mode. All escape sequences are filtered out before messages are output to the console.
Toggle to Normal Mode	Switch to normal mode. In normal mode, only the following escape sequences are filtered out before messages are output to the console: <ESC>(<ESC>stop <ESC>Q <ESC>R<ESC>r<ESC>R <ESC>^ This means that color, pseudo-graphics, etc. can also be represented to a limited extent.

Table 22: Console Logging Run State menu

8.16 Command Line Protocol (CLP)

The iRMC supports various text-based user interfaces, known as user shells, which can be configured differently for individual users.

The **S**ystem **M**anagement **A**rchitecture for **S**erver **H**ardware (SMASH) initiative defines a number of specifications with the following objectives:

– Provision of standardized interfaces for managing heterogeneous computer environments,

– Provision of an architecture framework with uniform interfaces, hardware and software discovery, resource addressing and data models.

You can find further information on SMASH under the following link:

http://www.dmtf.org/standards/smash

SMASH CLP syntax

SMASH CLP specifies a common command line syntax and message protocol semantics for managing computers on the Internet and in enterprise and service provider environments. You can find detailed information on SMASH CLP in the DMTF document “Server Management Command Line Protocol Specification (SM CLP) DSP0214”.

The general syntax of the CLP is as follows:

```
<verb> [<options>] [<target>] [<properties>]
```

<verb>

Verbs specify the command or action to be executed. The list of verbs describes the following activities, for instance:

– Establish (*set*) and retrieve (*show*) data,

– Change the status of a target (*reset*, *start*, *stop*),

– Manage the current session (*cd*, *version*, *exit*),

– Return information on commands (*help*).

In iRMC systems, the verb *oemfujitsu* also allows the use of special OEM commands.

<options>

Command options modify the action or the behavior of a verb. Options can immediately follow the verb in a command line and must always be introduced by a dash ("-").

Options allow you to, for instance,

– define the output format,

– permit recursive execution of a command,

– display the version of a command or

– request help.

<target>

<target> specifies the address or the path of the object to be manipulated by the command, i.e. the target of the command. This can be a single managed element such as a hard disk, a network adapter (Network Interface Card, NIC), or the management program (Management Assistance Program, MAP) itself. Targets can, however, also be services such as a transport service.

Several managed elements which can be managed by the management program can be subsumed under a single <target>, for instance the entire system.

Only one <target> may be specified for each command.

<properties>

<properties> describe the properties of the target of the command which are required to execute the command. Thus, <properties> identify the properties of the target's class that are to be retrieved or modified by the command.

User data in the CLP (overview)

Data within the CLP is structured hierarchically. The command *cd* allows you to navigate within this structure.

Hierarchy of the CLP commands

An overview of the CLP command hierarchy is shown in table 23 on page 385.

Target \ Verb	Properties	Comment	cd	show	help	exit	version	set	reset	start	stop	load	oemfsc
/ /		Root	X	X	X	X	X						
system1													
map1													
system1	name	Host System	X	X	X	X	X		System	PON	POFF		
	enabledstate												
...log1		Event Log (SEL)	X	X	X	X	X		iRMC				X
....record<n>	number	Single SEL entry	X	X	X	X	X		iRMC				X
	date												
	time												
	sensordescription												
	eventdescription												
	eventdirection												
map1	name	iRMC	X	X	X	X	X		iRMC				X
...firmware	version	iRMC FW	X	X	X	X	X		iRMC			X	X
...accounts		Accounts	X	X	X	X	X	X	iRMC				X
.....user<n>	username	User	X	X	X	X	X	X	iRMC				X
	password												
	group												
...nic1	networkaddress	LAN	X	X	X	X	X	X	iRMC				X
	oemfsc_nonvol_networkaddress												
	oemfsc_mask												
	oemfsc_nonvol_mask												
	oemfsc_gateway												
	oemfsc_nonvol_gateway												
	oemfsc_dhcp_enable												
	oemfsc_nonvol_dhcp_enable												
	oemfsc_vsi_path												
	oemfsc_vsi_server												
	oemfsc_vsi_permission												
	oemfsc_vsi_sustain												
...oemfsc_sensors		OEM Sensors	X	X	X	X	X		iRMC				X
....oemfsc_sensor_num<n>lun<m>	oemfsc_reading	Single Sensor	X	X	X	X	X		iRMC				X
	oemfsc_status												
	oemfsc_sensortype												
	oemfsc_readingtype												
...oemfsc_frus		FRU	X	X	X	X	X		iRMC				X
....oemfsc_fru_devid<n>lun<m>	oemfsc_description	Single FRU	X	X	X	X	X		iRMC				X

Table 23: Hierarchy of the CLP commands

9 Configuring iRMC S4 using the Server Configuration Manager

You can use the Server Configuration Manager to

– configure power consumption control via iRMC on the managed server,

– configure power supply redundancy via iRMC on the managed server,

– configure AVR title, license key and other features on the iRMC,

– configure iRMC time settings

– configure iRMC for providing virtual media,

– configure iRMC DNS registration,

– configure iRMC DNS server,

– configure iRMC Email alerting,

– configure iRMC Email format settings

– configure iRMC SNMP alerting,

– configure local user management on the iRMC,

– configure a directory server for the iRMC

– configure the CAS service on the iRMC.

Requirements:

The current ServerView agents must be installed on the managed server.

The Server Configuration Manager functions can be accessed in the following ways:

– Locally on managed servers using the ServerView Installation Manager.

– Locally on managed Windows-based servers using the Windows Start menu.

This is only supported for servers on which the ServerView agents for Windows are installed.

– On the remote workstation using the graphical interface of the Operations Manager.

  This is only supported for servers on which the ServerView agents for Windows are installed.

This chapter in detail describes the various ways to call the Server Configuration Manager.

For details on the Configuration Manager dialog pages, please refer to the online help of the Server Configuration Manager.

9.1 Calling the Server Configuration Manager from the ServerView Installation Manager

You can call the Server Configuration Manager from the ServerView Installation Manager (Installation Manager for short). Configuration via the Installation Manager is of significance when installing the server. The Installation Manager makes the Server Configuration Manager available both during preparation for installation and as a separate maintenance program. The Installation Manager is described in the manual “ServerView Installation Manager”.

9.2 Calling the Server Configuration Manager from the Windows Start menu

On Windows-based servers, you can also call the Server Configuration Manager via the Windows Start menu.

To do this, proceed as follows:

- On the managed server, select:
  Start – All Programs – Fujitsu – ServerView – Agents – Configuration Tools – System Configuration.

  The *System Configuration* window opens:

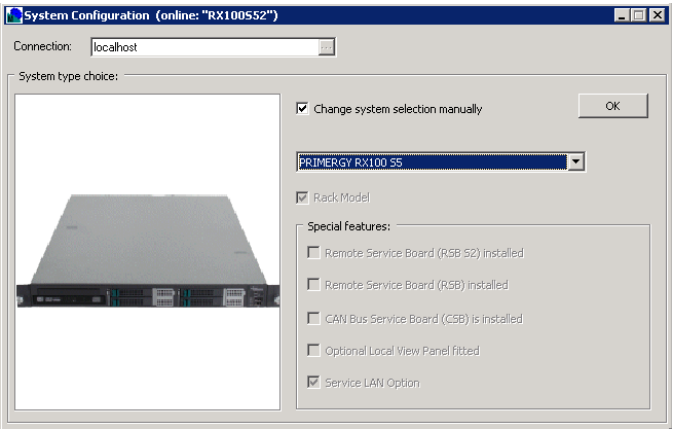


Figure 248: System Configuration window

- Accept the preset values.
- Click *OK*.

  The tab view of the *System Configuration* window opens.

  You can scroll to the left and right through the tabs by clicking the arrows next to the tabs.

Applying settings

To apply the settings made in the individual tabs, proceed as follows for each tab:

- Click the *Apply* button.
- Click the *Save Page* button.

  The iRMC automatically reboots to activate the changed settings.

9.3 Calling the Server Configuration Manager from the Operations Manager

The Server Configuration Manager dialog boxes for configuring the iRMC are also available from the graphical user interface of the Operations Manager. This allows you to configure the iRMC of the managed server from the remote workstation via a Web interface.

Proceed as follows:

- ► Start the Operations Manager (refer to the manual “ServerView Operations Manager”).

  The start window of the Operations Manager opens:

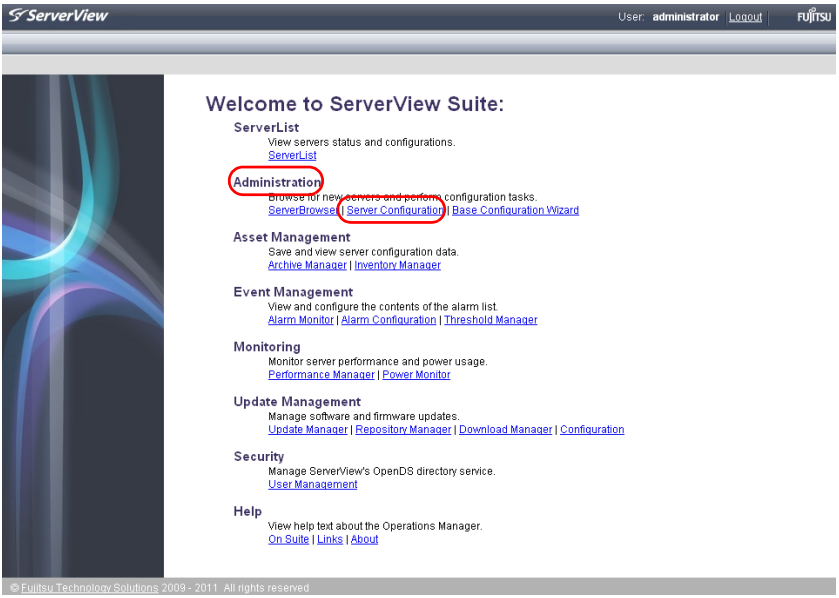

ServerView
User: administrator Logout
FUJITSU
Welcome to ServerView Suite:
ServerList
View servers status and configurations.
ServerList
Administration
Browse for new servers and perform configuration tasks.
ServerBrowser | Server Configuration | Base Configuration Wizard
Asset Management
Save and view server configuration data.
Archive Manager | Inventory Manager
Event Management
View and configure the contents of the alarm list.
Alarm Monitor | Alarm Configuration | Threshold Manager
Monitoring
Monitor server performance and power usage.
Performance Manager | Power Monitor
Update Management
Manage software and firmware updates.
Update Manager | Repository Manager | Download Manager | Configuration
Security
Manage ServerView's OpenDS directory service.
User Management
Help
View help text about the Operations Manager.
On Suite | Links | About
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Figure 249: Operations Manager: Start window

► Choose *Server Configuration* from the *Administration* menu of the Operations Manager start window.

This opens the following window:

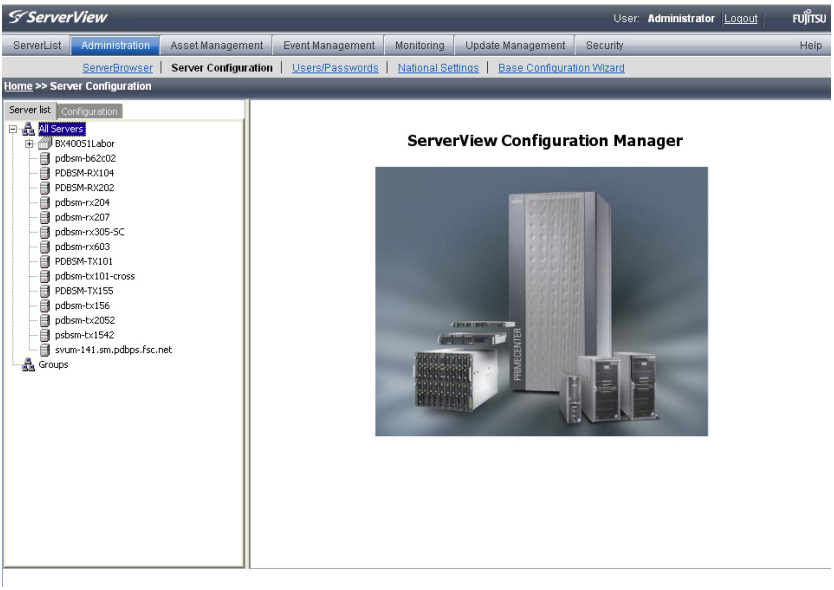

Figure 250: Operations Manager: Server Configuration window - Server list (1) tab

► In the hierarchy tree of the *Server list* tab, select the server to be configured.

This opens the following window:

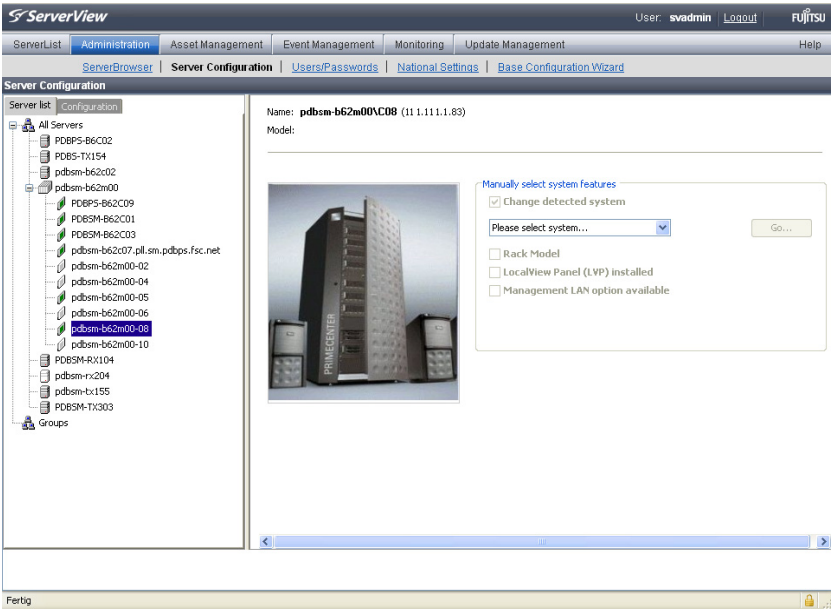

Figure 251: Operations Manager: Server Configuration window - Server list (2) tab

► On the right-hand side of the window, specify the details on the selected server and confirm your entries by clicking *GO*.

The first dialog of the Server Configuration manager opens.

10 Firmware update

This chapter provides you with information about the following topics:

– iRMC S4 firmware (overview)

– Creating a memory stick for updating the firmware

– Updating firmware images

– Emergency flash

– flash tools

CAUTION!

When updating / downgrading the firmware, note that the problem-free operation of the firmware can only be guaranteed if the runtime firmware and the SDR (Sensor Data Record) both belong to the same firmware release.

The current firmware versions are present on the *ServerView Suite DVD 2* or can be downloaded manually from the Download section of the Fujitsu Technology Solutions web server.

You can obtain the up-to-date version of the *ServerView Suite DVD 2* at two-monthly intervals.

Besides the possibility of performing a firmware update, you can also downgrade the firmware to the previous version.

Before updating or downgrading the firmware, read the supplementary documentation supplied with the new firmware carefully (in particular the Readme files).

10.1 iRMC S4 firmware (overview)

The iRMC S4 uses two different firmware images. The two firmware images each are stored on a 32-MB EEPROM (**E**lectrically **E**rasable **P**rogrammable **R**ead-**O**nly **M**emory):

– Firmware image 1 (low FW image)
– Firmware image 2 (high FW image)

The firmware of the iRMC S4 is not executed in the EEPROM, but is instead loaded into SRAM memory on startup and executed there. This means that it is possible to update both active and inactive firmware images online, i.e. with the server operating system (Windows or Linux) running.

If an error occurs while loading the firmware from one of the images, the firmware is automatically loaded from the other image.

Information on the iRMC S4 firmware and EEPROM can be found

– In the iRMC S4 web interface, page *iRMC S4 Information* (see page 173) or
– Using the flash tool (see page 408).

Active and passive firmware image

One of the two firmware images is active (running) at any given time, while the other is inactive. The firmware image that is active depends on the so-called firmware selector (see page 397).

Firmware selector

The firmware selector specifies the iRMC S4 firmware to be executed. Every time the iRMC S4 is reset and restarted, the firmware selector is evaluated and processing branches to the corresponding firmware.

The firmware selector can have the following values:

0 Firmware image containing the most recent firmware version

1 firmware image 1

2 firmware image 2

3 Firmware image containing the oldest firmware version

4 Firmware image most recently updated

5 Firmware image that has been updated least recently

Depending on the update variant used, the firmware selector is set differently after the update.

You can query and explicitly set the firmware selector

– On the *iRMC S4 Information* page of the iRMC S4 web interface (see "Running Firmware" on page 175) or

– Using the flash tool (see page 408).

10.2 Setting up the USB memory stick

You do **not** need the USB memory stick if you update the firmware of the iRMC in one of the following ways:

- Using the ServerView Update Manager
- Using ServerView Update Manager Express or ASP
- Using the iRMC web interface and TFTP server

Proceed as follows:

- Download the firmware *iRMC Firmware Update for USB Stick* from the Download section of the Fujitsu Technology Solutions web server to a directory on your computer.

  The ZIP archive *FTS_<spec>.zip* can be found in your download directory. (The *<spec>* part of the name provides information on the system type, system board, firmware/SDRR version etc.)

  The ZIP archive includes the following files:

  - *USBImage.exe*
  - *iRMC_<Firmware-Version>.exe*
  - *iRMC_<Firmware-Version>.IMA*

- Connect the USB memory stick to your computer.
- Start the file *iRMC_<Firmware-Version>.exe* or the file *USBImage.exe*.

  One of the following windows is opened depending on the file you call (see figure 252 on page 399):

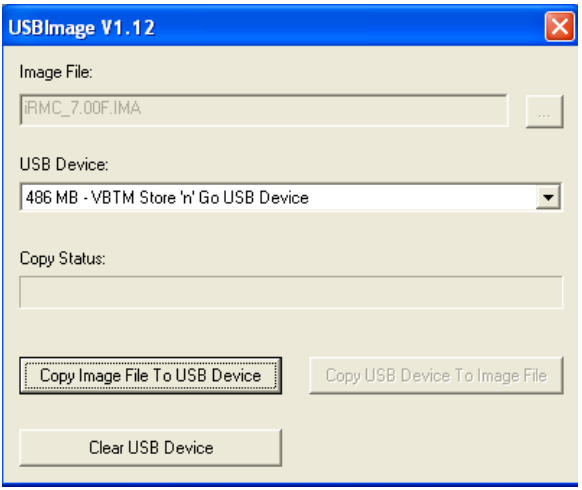

Figure 252: Copying the image file to the USB memory stick (with iRMC_<Firmware version>.exe)

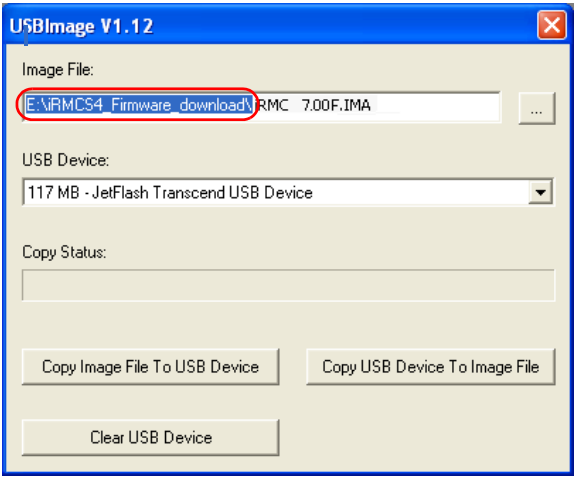

Figure 253: Copying the image file to the USB memory stick (with USBImage.exe)

If you have called *USBImag.exe*, then under *Image File:*, you must explicitly specify the file *iRMC_<Firmware-Version>.IMA*.

► Click *Clear USB Device* to delete the data from the USB memory stick.

- Click *Copy Image File to USB Device* to copy the file *BMC_<Firmware-Version>.IMA* to the USB memory stick and extract it.

  CAUTION!

  This action overwrites the content of the USB memory stick.

When the copy operation is complete, the flash tools and image files are present on the USB memory stick.

Name	Size	Type	Date Modified
FDOS		Dateiordner	26.09.2012 10:26
MENU		Dateiordner	26.09.2012 10:26
700F_317.bin	30.720 KB	BIN-Datei	29.07.2013 11:43
Autoexec.bat	1 KB	Stapelverarbeitung...	09.11.2007 15:02
CHECK.EXE	15 KB	Anwendung	19.05.2009 10:44
clibmc.bat	1 KB	Stapelverarbeitung...	08.03.2006 10:46
command.com	65 KB	Anwendung für MS-...	16.02.2007 13:29
config.sys	1 KB	Systemdatei	16.02.2007 14:40
CVT100.EXE	20 KB	Anwendung	06.08.1988 20:17
CVT100.SET	1 KB	SET-Datei	05.12.2002 15:06
DosYafuf.exe	183 KB	Anwendung	22.07.2013 08:01
flashm.bat	6 KB	Stapelverarbeitung...	29.07.2013 11:42
FLIRMCS4.EXE	42 KB	Anwendung	17.07.2013 09:08
IPMIVIEW.EXE	148 KB	Anwendung	03.05.2013 10:59
IPMIVIEW.INI	14 KB	Konfigurationseinst...	03.08.2010 14:20
KERNEL.SYS	45 KB	Systemdatei	16.02.2007 15:11
readme.txt	9 KB	Textdokument	26.07.2013 08:03
SLEEP.EXE	9 KB	Anwendung	25.02.1998 20:17
WBAT.INI	3 KB	Konfigurationseinst...	08.06.2004 14:12

Figure 254: Image files and flash tool on the USB memory stick.

10.3 Updating firmware images

Since the iRMC S4 firmware executes in the SRAM memory of the iRMC S4, it is possible to update both active and inactive firmware images online, i.e. with the server operating system running.

The following methods are available for updating the firmware images:

– over the iRMC web interface

– using the ServerView Update Manager

– using ServerView Update Manager Express or ASP

– Update using the operating system flash tools.

If a new version of the bootloader is available, both firmware images will be automatically flashed within the same update process.

Downgrading the firmware to the previous version

Besides the possibility of performing a firmware update, you can also downgrade the firmware to the previous version.

The simplest way to downgrade the firmware is to store the previous-version firmware image as the inactive firmware image in the EEPROM of the iRMC S4. In this case, you only have to set the firmware selector to this previous-version image (see page 193) and subsequently restart the iRMC S4 to activate the firmware.

You can also downgrade the firmware by applying the methods described in the following sections. In these cases, you perform a firmware update based on the firmware of the previous version. Special requirements to perform the downgrade are pointed out separately in the following sections.

10.3.1 Update via the iRMC web interface

The *iRMC S4 Firmware Update* page allows you to update the firmware of the iRMC by providing the firmware image either locally on the remote workstation, on a network share, or on a TFTP server (see section "iRMC S4 Firmware Update" on page 192).

10.3.2 Update using the ServerView Update Manager

Using the ServerView Update Manager, you can start the update of the iRMC S4 firmware via a graphical user interface or via a command line interface (Windows and Linux). The ServerView Update Manager accesses the update data via its Update Repository on the *ServerView Suite DVD 2* or on the management server. You update the update repository on the management server by means of the Download Manager or by performing a manual download from the Download section of the Fujitsu Technology Solutions web server.

For more detailed information on firmware updates with the ServerView Update Manager, see the “ServerView Update Manager” manual.

10.3.3 Online update using ServerView Update Manager Express or ASP

Under Windows and Linux operating systems, you can update the iRMC firmware either using the graphical user interface of ServerView Update Manager Express or by using the ASP (Autonomous Support Package) command interface.

Under Windows, you can also start an ASP in the Windows Explorer by double-clicking the corresponding ASP-*.*exe* file.

When downgrading the firmware, please note:

– Downgrade via Update Manager Express:

  The firmware downgrade is only feasible in the *Expert* mode. In addition, the *Downgrade* option must be activated.

– Downgrade via ASP:

  Windows
  : You can perform the downgrade if you start the ASP by double-clicking the corresponding *.*exe* file. When starting the ASP via the CLI, you must explicitly specify the *Force=yes* option.

  Linux
  : You must explicitly specify option *-f* or option *--force*.

For more detailed information on firmware updates with Update Manager Express and ASP, see the “Local System Update for PRIMERGY Servers” manual.

10.3.4 Update using the operating system flash tools

An online update using the operating system flash tools is only performed as a recovery flash, i.e. no version check is performed.

Prerequisite:

The flash tools and the files for the firmware update must be present in the file system of the managed server.

You use one of the following flash tools, depending on the operating system you are running:

DOS:	flirmcs4
Windows:	winflirmcs4
	Prerequisite: The ServerView agents for the used Windows operation system (32/64 bit) must be running on the managed server.
Windows (32 bit):	w32flirmcs4 (No agents required.)
Windows (64 bit):	w64flirmcs4 (No agents required.)
Linux:	linflirmcs4

You call the flash tools in the Windows command line (flirmcs4, w32flirmcs4, w64flirmcs4, winflirmcs4) or at the Linux CLI (linflirmcs4).

The syntax and operands for the flash tools are described in section "Flash tools" on page 408.

Proceed as follows:

An online update using a USB memory stick is described below (see section "Setting up the USB memory stick" on page 398).

- Connect the USB memory stick to the managed server.
- In the Windows command line or the Linux Command Line Interface (CLI) switch to the drive corresponding to the USB memory stick.
- Set the firmware selector to the value 4 by calling the flash tool with the parameter */s 4*.

  E.g., in the Windows command line you enter:

  `w32flirmcs4 /b 4` or `w64flirmcs4 /b 4`

- Start the update of the firmware and the SDR data by calling the flash tool with the corresponding update files.

  E.g., in the Windows command line you enter:

  `w32flirmcs4 *.bin /i` or `w64flirmcs4 *.bin /i`

  This flashes the new version into the inactive EEPROM.

  Firmware and SDR are flashed from the same **.bin* file.

  If you call the flash tool with the parameter */wr*, the updated firmware will automatically be activated once the flash has completed. In this case, it will not be necessary to reboot the iRMC.

  During the firmware update, the console informs you about the progress of the update operation. If an error occurs, the update operation is aborted and a corresponding return code is reported (see page 410).

- Restart the managed server. This automatically activates the firmware image with the updated firmware.

10.3.5 Update via the FlashDisk menu

For an update via the FlashDisk menu, you require a bootable USB memory stick (see section "Setting up the USB memory stick" on page 398).

Proceed as follows:

- Connect the USB memory stick to the managed server (directly or via remote storage).
- Boot from the USB memory stick.

After completion of the boot operation, the data in the USB memory stick is automatically copied to a RAM disk. The *autoexec.bat* file is then started automatically.

The FlashDisk menu opens:

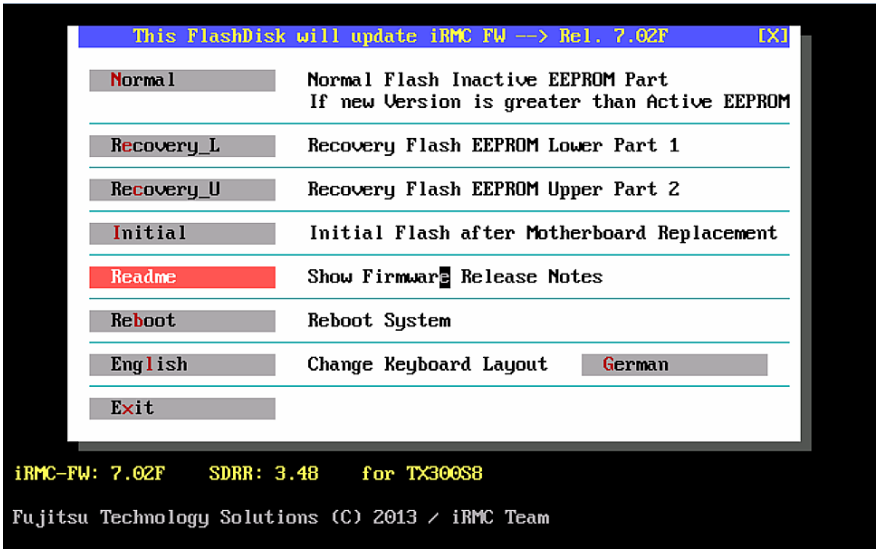

Figure 255: FlashDisk menu

A firmware downgrade is only possible via recovery flash.

Normal

A *normal flash* is performed.

During a normal flash operation, those areas of the EEPROM that contain the active firmware are checked to see whether they are up to date. If one of these areas is not up to date then the corresponding area for the inactive firmware is updated if it is not already up to date.

Recovery _L

A *recovery flash* for firmware image 1 (low firmware image) is carried out.

In the case of a recovery flash, the flash is performed for all three areas of firmware image 1 without any version check.

Recovery _U

A *recovery flash* for firmware image 2 (high firmware image) is carried out.

In the case of a recovery flash, the flash is performed for all three areas of firmware image 2 without any version check.

Initial

Both active and inactive firmware are flashed.

Readme

The Readme file is opened.

Reboot

An iRMC S4 warm start is performed.

English / *German*

Specify keyboard layout. *German* is set by default.

- Start the required update variant by clicking on the corresponding button.

  During the firmware update, the console informs you about the progress of the update operation. If an error occurs, the update operation is aborted. A corresponding return code is reported (see page 410).

- Once the update operation has been completed, click on *Exit*, to close the FlashDisk menu.

- Remove the USB memory stick from the managed server.

- Restart the managed server (e.g. with Ctrl + Alt + Del).

10.4 Emergency flash

If the iRMC S4 firmware can no longer be executed, e.g. because the SDRs are not compatible with the system, then you can use the emergency mode to start the firmware running again. In emergency mode, the system automatically branches to the bootloader and is the ready for the firmware update.

Emergency mode is indicated by the error LED (global error LED) (red) and the identification LED (blue) flashing alternately.

To switch the managed server to emergency mode and then update the iRMC S4's firmware, proceed as follows:

- ► Disconnect the power supply connector.
- ► Insert the connector in the socket again with the Identify key held down.

  The managed server is now in emergency mode.
- ► Boot the server to DOS and use the recovery flash procedure to update the iRMC S4's firmware.

  If the firmware is not active then the boot operation may take up to 2 minutes to start. You can ignore the error message "iRMC S4 Controller Error" which the BIOS outputs during this period.

10.5 Flash tools

The flirmcs4, w64flirmcs4, and linflirmcs4 w32flirmcs4 differ only in respect of the name and the environment in which they are called. This means that the description below also applies to these tools. Instead of “w32flirmcs4”, you simply enter “flirmcs4”, “w64flirmcs4” or “linflirmcs4” as appropriate.

Syntax

```
w32flirmcs4 <filename> [<Option>]...
```

<Filename> without flash options: Update firmware (same as /u)

Options

/h or /? Show this Help Info

/v Show the actual program version of ’w32flirmcs4’

/vNoDriverLoad Show the actual program version of ’w32flirmcs4’

/o Show the actual revisions of the firmware

/1 Flash 1st EEPROM with version check

/2 Flash 2nd EEPROM with version check

/f1 Flash forced 1st EEPROM without version check

/f2 Flash forced 2nd EEPROM without version check

/fi Flash forced inactive EEPROM without version check

/i Flash inactive EEPROM with version check

/u Flash inactive EEPROM if new version is greater than active EEPROM

/wr Initiate a warm reset of the firmware

/s [0-2] Show/Set FW Upload Selector

0: Auto inactive image

1: Image 1, low firmware image

2: Image 2, high firmware image

/b [0-5] Show/Set FW Boot Selector

0: Auto select higher firmware version

1: Image 1, low firmware image

2: Image 2, high firmware image

3: Auto select lower firmware version

4: Auto select most recently programmed firmware

5: Auto select least recently programmed firmware

/n No console output, no user entry necessary

/noUserEntry No user entry necessary, but with console output

/logError[file] Write errors to logfile, default: w32flirmcs4.logError

/logOutput[file] Write each terminal output to logfile,

default: w32flirmcs4.logOutput

/logDebug[file] Write each internal debug output to logfile,

default: w32flirmcs4.logDebug

/ignore Flash the selected EEPROM without any checks (FW version, SDR ID)

/d [0-99] [0-99] Additional debug output [verbose level]

a) without verbose level: print whole debug output

b) one verbose level: print debug output <= verbose level

c) two verbose level: print debug output between

1st and 2nd verbose level

/e Emulation test mode (no access to iRMC, for test only)

/noExitOnError No exit and continue program after error (for test only)

99: No flash because EEPROM firmware is actual

Return codes

Value	Meaning
00	No error, program successfully terminated.
01	Arguments missing or not correct.
02	Firmware upload selector value out of range (0-2).
03	Firmware boot selector value out of range (0-5).
04	Firmware image file missing.
05	Firmware image file could not be opened.
06	Communication with BMC not possible
07	Incorrect completion code of the IPMI command.
08	The system has no iRMC S4.
09	SDR ID of the system and the flash image file are not the same.
10	Cannot allocate memory buffer.
11	File transfer failed.
12	IPMI call failed (response data size is 0).
13	HTI interface is not available.
14	HTI interface detection failed (other detection error).
15	HTI interface detection failed (ScSBB2.sys driver not available).
16	Connecting to HTI failed.
17	Flash process failed.
18	Error completion code of [F5 0B Start TFTP Flash]: 0xCB. Data not present (TFTP Server could not provide the requested image file)
19	Error completion code of [F5 0B Start TFTP Flash]: 0xD3. Destination unavailable (TFTP Server is not reachable).
20	Unknown completion code of [F5 0B Start TFTP Flash].
21	Wrong file size of the firmware image file.
22	Seek error with the firmware image file.
23	GetFullPathName failed.
24	Cannot load image because flash status is 0x04 (image download in progress).
25	Cannot load image because flash status is 0x08 (flash in progress).
26	Unexpected flash status of the iRMC before loading file.
27	Firmware image file does not exist.
28	Unexpected IPMI command response data size.

Table 24: Return codes of the flash tools

Value	Meaning
29	Unexpected return value from HTI function.
30	The operating system cannot run this application program.

Table 24: Return codes of the flash tools

11 Remote installation of the operating system via iRMC S4

This chapter gives an overview on how you to use the ServerView Installation Manager (abbreviated to Installation Manager below) and the iRMC features "Advanced Video Redirection (AVR)" and "Virtual Media" to install the operating system on the managed server from the remote workstation.

The chapter discusses the following specific topics:

– General procedure for the remote installation of an operating system using storage media which are provided via the "Virtual Media" feature. In the following, storage media provided via the "Virtual Media" feature are referred to as virtual storage media for short.

– Booting the managed server from the remote workstation using the ServerView Suite DVD 1 (Windows and Linux).

– Installing Windows from the remote workstation after configuration on the managed server.

– Installing Linux from the remote workstation after configuration on the managed server.

The description focuses primarily on the handling of the virtual storage media. It is assumed that readers are familiar with the Installation Manager functionality (see the manual "ServerView Installation Manager").

Prerequisites for the remote installation of the operating system via iRMC S4:

– The iRMC's LAN interface must be configured (see page 43).

– The license key for the use of the iRMC functions "Advanced Video Redirection (AVR)" and "Virtual Media" must be installed (see page 176).

11.1 Installing the operating system via iRMC S4 - general procedure

For the Installation Manager, the remote installation of the operating system via iRMC represents a local configuration and installation of the operating system on the managed server which you perform from the remote workstation via the AVR window using virtual media.

The following steps are required in order to perform an installation via the Installation Manager:

1. Connect the virtual storage medium (DVD or Installation Manager boot image) from which you want to boot as virtual storage medium.
2. Boot and configure the managed server via DVD or the Installation Manager boot image.
3. Use the Installation Manager at the remote workstation to install the operating system on the managed server.

Installing Windows without the Installation Manager using the Windows installation CD/DVDs

You can perform a remote installation of Windows via Virtual Media either using the Installation Manager or exclusively using the Windows installation CD/DVDs. The two procedures correspond in terms of the handling of the virtual storage media.

However, you are advised to install Windows via the Installation Manager for the following reasons:

– The Installation Manager itself identifies the required drivers and copies these to the system.

– All the Installation Manager functions are available to you during installation. This means that you can, for example, configure the entire system including the server management settings.

– Installations without the Installation Manager have to be controlled via the keyboard since the mouse cursor cannot be synchronized during the installation process. In contrast, if you install using the Installation Manager then all configuration and installation steps can be performed using the mouse.

– If you install without the Installation Manager then all the settings required for mouse cursor synchronization must subsequently be performed manually.

– Installation using the Installation Manager does not take significantly longer than installation using the operating system CD/DVDs.

Installing Linux without the Installation Manager using the Linux installation CD/DVD

If you know which drivers are required by the system then you can start the Linux installation by booting from the Linux installation CD/DVD.

If the installation requires you to integrate drivers from the floppy disk then, before starting the installation, you must set up a virtual media connection.

– to the storage medium (CD-ROM/DVD-ROM or ISO image) from which you want to boot and

– if necessary to storage medium for driver installation.

11.2 Connecting a storage medium as Virtual Media

The Virtual Media functionality makes a “virtual” drive available which is located elsewhere in the network.

The source for the virtual drive can be:

– Physical drive or image file at the remote workstation. The image file may also be on a network drive (with drive letter, e.g. “D:” for drive D).

– Image file provided centrally in the network via Remote Image Mount.

For detailed information on the "virtual Media" feature, see chapter "Virtual Media Wizard" on page 111.

Connecting a storage medium as virtual storage medium at the remote workstation

Proceed as follows at the remote workstation to establish the virtual media connection:

- Log into the iRMC web interface with Remote Storage Enabled permission (see page 122).
- Open the *Advanced Video Redirection (AVR)* page and start the AVR (see page 324).
- Start “Virtual Media” in the AVR window (see page 113).
- Prepare the storage media as virtual storage media (see page 116):
  - If installation is performed via the Installation Manager:

    ServerView Suite DVD 1 or an Installation Manager boot image and optionally a formatted USB memory stick as a status backup medium.
  - If installation is performed from the vendor’s installation CD/DVD: Windows or Linux installation CD/DVD and optional drivers.

  It is recommended that the ServerView Suite DVD 1 and the operating system installation CD/DVD are stored in a folder as an image file (ISO image) and that they are connected from there as virtual storage media or provided via Remote Image Mount.

The prepared storage media are displayed in the *Virtual Media* dialog box.

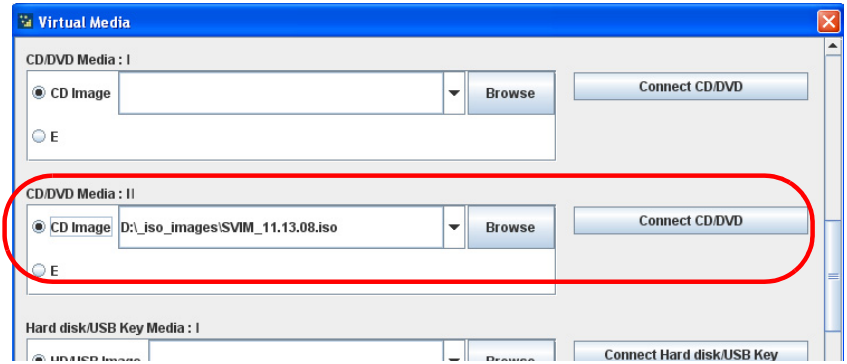

Figure 256: Storage Devices dialog box: ServerView Suite DVD 1 ISO image

- Click *Connect* to connect the DVD ROM drive (DVD) or the Installation Manager boot image as virtual storage media.

Connect the ISO image (image file) provided via Remote Image Mount

You can use an image file provided via Remote Image Mount for booting from an Installation Manager boot image.

For details on how to provide an image file via Remote Image Mount, see section "Remote Image Mount - connecting remote ISO images" on page 335:

11.3 Booting the managed server from ServerView Suite DVD 1 and configuring it with the Installation Manager

Proceed as follows at the remote workstation:

- ► Use the iRMC web interface to start up the managed server or reboot the server (see page 201). You can follow the progress of the boot process in the AVR window.

  During the managed server's BIOS POST phase, virtual storage media are displayed as USB 2.0 devices. Virtual storage media are represented by the following entries in the BIOS boot sequence:

  – A (physical) floppy disk is represented by a separate entry "FTS RemoteStorage FD-(USB 2.0)".

  – All other virtual storage device types are represented by the shared entry "CD-ROM DRIVE".

  > **i** If a local CD-ROM/DVD-ROM drive and a CD-ROM/DVD-ROM drive connected as virtual media are both present at the managed server then the managed server boots from the CD-ROM/DVD-ROM drive provided via Virtual Image.

- ► Press F2 while the server is booting.
- ► In the UEFI set-up, open the menu *Boot* in which you can define the boot sequence.
- ► Specify Boot Priority=1 (highest priority) for the ServerView Suite DVD 1 which is connected as virtual storage medium.
- ► Save your settings and exit the UEFI setup.

The managed server then boots from ServerView Suite DVD 1 which is connected as virtual storage.

> **i** **If the system does not boot from the virtual storage medium (ServerView Suite DVD 1 or Installation Manager boot image):**
>
> - ► Check whether the storage medium is displayed during the BIOS POST phase and connect the storage medium as a virtual medium if necessary.
> - ► Make sure that the correct boot sequence is specified.

It takes about 5 minutes to boot from ServerView Suite DVD 1 via a virtual storage medium. The boot progress is indicated during the boot process. Once the boot process has completed, the Installation Manager startup displays a dialog box in which you are asked to select a medium for the status backup area (status backup medium).

- ► Choose *Standard mode* as the *Installation Manager mode*.
- ► Specify whether the configuration data is to be stored on a local replaceable data medium or on a network medium:

  Please note that if you do not select any status backup option all the configuration data is lost when you reboot.

  Status backup medium

  The backup medium must not be write-protected.

  A USB stick must already be connected to the USB port when the system is booted. If you fail to do this and wish to save the configuration file: Connect the USB stick now and reboot from ServerView Suite DVD 1.

  - ► Choose the option *on local drive (floppy / USB stick)*.
  - ► Select the corresponding drive in the box to the right of this option.

    For more detailed information on creating Installation Manager status disks, see the manual “ServerView Installation Manager”.

  Connecting the status medium and/or the installation media via the network

  - ► Set up the required shares for this purpose.

    If you are making a medium with a prepared configuration file and/or an installation medium available via the network, you have to choose this option. Depending on your infrastructure, you can either obtain a temporary IP address via DHCP or manually configure an IPv4 or IPv6 address for the current Installation Manager session.

- ► Start the Installation Manager by clicking *Continue*.

Starting local deployment

The Welcome screen appears when you start the Installation Manager:

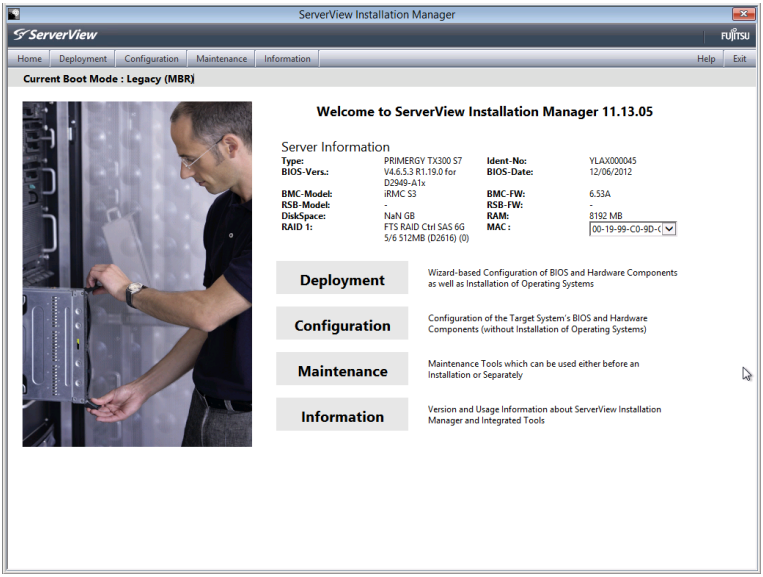

Figure 257: Installation Manager - Welcome screen

- Click *Deployment* to start preparation of the local installation (deployment).

  To prepare the installation, the Installation Manager wizards take you through a sequence of configuration steps that gather specifications for configuring the system and for subsequent unattended installation of the operating system.

  Configure the local CD ROM/DVD ROM drive of the managed server as the installation source. You can then also make the Windows installation CD/DVD available from the CD ROM/DVD ROM drive of the remote workstation if you connect it to the managed server as a virtual storage medium (see section "Installing Windows on the managed server after configuration" on page 421).

Once you have completed configuration with the Installation Manager, the *Installation Info* dialog page for the Windows installation (see page 421) or for the Linux installation (see page 423) is displayed. This allows you to start the installation process.

11.4 Installing the operating system on the managed server after configuration

Once you have completed configuration, you should install the operating system on the managed server.

11.4.1 Installing Windows on the managed server after configuration

After configuration has been completed, the Installation Manager displays the following dialog page:

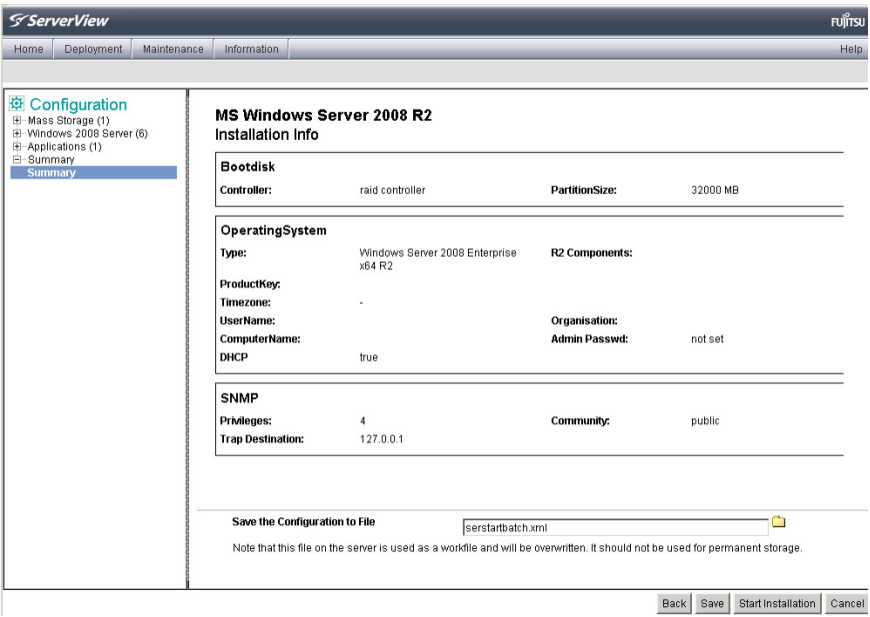

Figure 258: Installation Manager - Installation Info page

If you have configured the local CD ROM/DVD ROM drive of the managed server as the installation source, proceed as follows at the remote workstation:

- Clear your currently active virtual connections. For more detailed information on clearing virtual media connections, see page 119.

- ► Remove ServerView Suite DVD 1 from the DVD ROM drive at the remote workstation.
- ► Insert the Windows installation CD/DVD in this DVD ROM drive.

  Close the application if *autostart* is active.

- ► Connect the CD ROM/DVD ROM drive containing the Windows installation CD/DVD as virtual storage medium.
- ► In the *Installation Info* page of the Installation Manager, click *Start installation*.

  All the installation files are copied to the managed server.

  The Installation Manager opens a confirmation dialog page when the copy operation is complete and prompts you to remove all the storage media from the removable media drives before the managed server is rebooted.

  Before rebooting the system, you must in particular shut down all current virtual media connections.

- ► To shut down all current virtual media connections, proceed as follows:
  - ► Start “Virtual Media” (see page 113).

    The *Virtual Media* dialog box is displayed with the currently connected virtual storage devices.
  - ► “Safely remove” the storage device, i.e. ensure that no more applications/programs are accessing the storage media.
  - ► Click all *Disconnect...* buttons to remove all the virtual storage connections.
- ► On the confirmation dialog page, click *Ok* to reboot the managed server.

Once the managed server has rebooted, you can monitor the entire installation by means of the AVR.

11.4.2 Installing Linux on the managed server after configuration

The mouse can be used but not synchronized during Linux installation.

Whenever you change a virtual storage medium, you must remove the virtual media connection for the currently connected medium and then connect the new medium as a virtual storage medium.

After configuration has been completed, the Installation Manager displays the following dialog page:

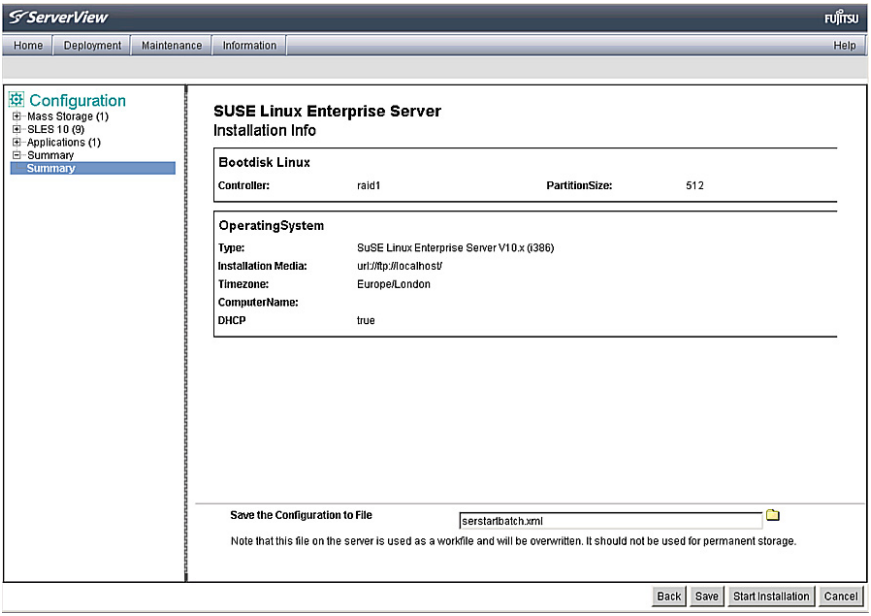

Figure 259: Installation Manager - Installation Info

If you have configured the local CD ROM/DVD ROM drive of the managed server as the installation source, proceed as follows at the remote workstation:

- ► Clear your currently active virtual media connections. For more detailed information on clearing virtual media connections, see page 119.
- ► Remove ServerView Suite DVD 1 from the DVD ROM drive at the remote workstation.

- ► Insert the Linux installation CD/DVD in this DVD ROM drive.

  Close the application if *autostart* is active.

- ► Connect the CD ROM/DVD ROM drive containing the Linux installation CD/DVD as virtual storage medium.
- ► In the *Installation Info* page of the Installation Manager, click *Start installation*.

  All the installation files are copied to the managed server. The Installation Manager opens a confirmation dialog page when the copy operation is complete and prompts you to remove all the storage media from the removable media drives before the managed server is rebooted.

  Before rebooting the system, you must in particular shut down all current virtual media connections.

- ► Before rebooting the system, shut down the current virtual media connections.

  To do this, proceed as follows:

  - ► Start “Virtual Media” (see page 113).

    The *Virtual Media* dialog box is displayed with the currently connected virtual media devices.

  - ► Click all *Disconnect* buttons to remove all the virtual media connections.
  - ► “Safely remove” the storage device, i.e. ensure that no more applications/programs are accessing the storage media.

- ► On the confirmation dialog page, click *Ok* to reboot the managed server.

Once the managed server has rebooted, you can monitor the entire installation by means of the AVR.

12 Appendix

The appendix provides you with information about the following topics:

– "IPMI OEM Commands supported by the iRMC" on page 425

– "Configuring the iRMC via SCCI and scripted configuration" on page 452

12.1 IPMI OEM Commands supported by the iRMC

This section describes a selection of OEM-specific IPMI commands supported by the iRMC S4.

12.1.1 Overview

The following OEM-specific IPMI commands are supported by the iRMC:

- SCCI-compliant Power On/Off commands
  (SCCI: **S**erverView **C**ommon **C**ommand **I**nterface)
  - 0115 Get Power On Source
  - 0116 Get Power Off Source
  - 011C Set Power Off Inhibit
  - 011D Get Power Off Inhibit
  - 0120 Set Next Power On Time
- **SCCI-compliant communication commands**
  - 0205 System OS Shutdown Request
  - 0206 System OS Shutdown Request and Reset
  - 0208 Agent Connect Status
  - 0209 Shutdown Request Canceled
- **SCCI-compliant signaling commands**
  - 1002 Write to System Display

- **Firmware-specific commands**
  - 2004 Set Firmware Selector
  - 2005 Get Firmware Selector
  - C019 Get Remote Storage Connection
  - C01A Set Video Display on/off
- **BIOS-specific command**
  - F109 Get BIOS POST State
  - F115 Get CPU Info
- **iRMC S4-specific commands**
  - F510 Get System Status
  - F512 Get EEPROM Version Info
  - F542 Get HDD lightpath status (Component Status Signal Read)
  - F543 Get SEL entry long text
  - F545 Get SEL entry text
  - F5B0 Set Identify LED
  - F5B1 Get Identify LED
  - F5B3 Get Error LED
  - F5DF Set Nonvolatile Cfg Memory to Default Values
  - F5E0 Set Configuration Space to Default Values
  - F5F8 Delete User ID

12.1.2 Description of the IPMI OEM commands

The following sections describe the individual OEM-specific IPMI commands.

12.1.2.1 Description format

The OEM-specific IPMI commands contained in this chapter are described in the format used by the IPMI standard for describing IPMI commands.

The IPMI standard describes the IPMI commands using command tables which list the input and output parameters for each command.

You can find information on the IPMI standards on the Internet under:

http://developer.intel.com/design/servers/ipmi/index.htm

12.1.2.2 SCCI-compliant Power On/Off commands

01 15 - Get Power On Source

This command returns the reason for the most recent Power On. The possible reasons are listed below.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**01** Cmd : Command Group Communication
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**15** Command Specifier
Response Data	-	**BC**
	-	**01**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	3	**01** Data Length
	4	Power on Source: Cause of last power on

Power on Source	Description
0x00	Software or command
0x01	Power switch (on the front panel or keyboard)
0x02	Automatic restart after power failure
0x03	Clock or timer (hardware RTC or software timer)
0x04	Automatic restart after fan failure shutdown
0x05	Automatic restart after critical temperature shutdown
0x08	Reboot after watchdog timeout
0x09	Remote on (modem RI line, SCSI termination power, LAN, chip card reader...)
0x0C	Reboot after a CPU error
0x15	Reboot by hardware reset
0x16	Reboot after warm start
0x1A	Powered on by a PCI Bus Power Management Event
0x1D	Powered on by remote control via remote manager
0x1E	Reboot/reset by remote control via remote manager

01 16 - Get Power Off Source

This command returns the reason for the most recent Power Off. The possible reasons are listed below.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**01** Cmd : Command Group Communication
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**16** Command Specifier
Response Data	-	**BC**
	-	**01**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	3	**01** Data Length
	4	Power off Source: Cause of last power off

Power off Source	Description
0x00	Software (SWOFF, power off by command)
0x01	Power switch (on the front panel or keyboard)
0x02	AC power fail
0x03	Clock or timer (hardware RTC or software timer)
0x04	Fan failure
0x05	Critical temperature
0x08	Final power-off after repeated watchdog timeouts
0x0C	Final power-off after repeated CPU errors
0x1D	Powered off by remote control via remote manager

01 1C - Set Power Off Inhibit

This command sets the *Power Off Inhibit* flag, which temporarily suppresses any unfounded attempt to power down the server.

If the *Power Off Inhibit* flag is set, the firmware saves the cause of any attempt to perform a “Power Off”, “Power Cycle” or restart of the server, but does not perform the action. The cause of the most recent attempt to perform a “Power Off”, “Power Cycle” or restart of the server is always saved at any given time. The stored action is only performed when the *Power Off Inhibit* flag is reset.

The *Power Off Inhibit* flag is automatically reset after a power failure or when the reset button is pressed.

The effect of the *Power Off Inhibit* flag is the same as that of the Dump flag used when creating a main memory dump. In this case, the initiator must set the flag before making the dump and reset it when the dump is complete.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**01** Cmd : Command Group Communication
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS Byte first
	4	**1C** Command Specifier
	5	**00** Object ID
	6:7	**00 00** Value ID
	8	**01** Data Length
	9	Power Off Inhibit Flag: 0 no Inhibit, 1 Inhibit
Response Data	-	**BC**
	-	**01**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS Byte first

01 1D - Get Power Off Inhibit

This command gets the value of the *Power Off Inhibit* flag.

For further details on the *Power Off Inhibit* flag, see the description of "01 1C - Set Power Off Inhibit" on page 430

Request Data	-	**B8** NetFn|LUN: OEM/Group
	-	**01** Cmd : Command Group Communication
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS Byte first
	4	**1D** Command Specifier
Response Data	-	**BC**
	-	**01**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS Byte first
	5	**01** Response Data Length
	6	Power Off Inhibit Flag: 0 no Inhibit, 1 Inhibit

01 20 - Set Next Power On Time

This command switches on a system at the given time independent of the stored On/Off times in the Configuration Space.

The command takes effect only once.

You cancel a “Power On” time previously set with a 01 20 command by specifying the “Power On” time “0” in a subsequent 01 20 command.

Request Data	-	**B8** NetFnILUN: OEM/Group
	-	**01** Cmd : Command Group Communication
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**20** Command Specifier
	5	**00** Object ID
	6:7	**00 00** Value ID
	8	**04** Data Length
	9:12	Time (LSB first) (see below)
Response Data	-	**BC**
	-	**01**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first

Time (LSB first)

Time (UNIX-specific format) when the system switches on again. Time is NOT stored in non-volatile memory. Resolution is 1 minute. After the system has switched on, Time is set to 0 internally.
If Time == 0, the system is not switched on.

12.1.2.3 SCCI-compliant communication commands

Die SCCI-compliant communication commands require that the Agent Service is running under the OS. To execute the commands, the iRMC S4 communicates with Agent which finally performs the action.

02 05 - System OS Shutdown Request

This command initiates shutdown of the server's operating system.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**02** Cmd : Command Group Communication
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**05** Command Specifier
Response Data	-	**BC**
	-	**02**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first

02 06 - System OS Shutdown Request and Reset

This command initiates the shutdown of the server's operating system and subsequently restarts the system.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**02** Cmd : Command Group Communication
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**06** Command Specifier
Response Data	-	**BC**
	-	**02**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first

02 08 - Agent Connect Status

This command checks whether the agent is active.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**02** Cmd : Command Group Communication
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**08** Command Specifier
Response Data	-	**BC**
	-	**02**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	5	**01** Data Length
	6	**Connect Status:** 00 = Connection lost, agent not connected. 01 = Connection re-established, agent connected.

02 09 Shutdown Request Cancelled

This command cancels a shutdown request that has been issued.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**02** Cmd : Command Group Communication
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**09** Command Specifier
Response Data	-	**BC**
	-	**02**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first

12.1.2.4 SCCI-compliant signaling command

10 02 - Write to System Display

This command is used to write characters to the LocalView display (if connected).

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**10** Cmd : Command Group Fan Test
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**02** Command Specifier
	5	**Object Index**: : Line on Display to write on.
	6:7	**Value ID** (not used)
	8	**Length** Number of characters to write, incremented by one. (The string need not be null-terminated; characters exceeding the length of a display line are truncated.)
	9	**Attribute:** 0 = Write String left aligned. 1 = Write String centered.
	10:10+n	**Characters** to write to the display; string need not be null-terminated.
Response Data	-	**BC**
	-	**10**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first

12.1.2.5 Firmware-specific commands

20 04 - Set Firmware Selector

This command configures the firmware image of the iRMC which is to be active after a firmware reset.

Request Data	-	**20** NetFnlLUN: Firmware
	-	**04** CMD : Command Group Firmware
	1	Selector: 0 = Auto (Select firmware image with highest firmware version.) 1 = low firmware image 2 = high firmware image 3 = Auto oldest version (Select firmware image with oldest firmware version.) 4 = MRP (Select most recently programmed firmware.) 5 = LRP (Select least recently programmed firmware.)
Response Data	-	**24**
	-	**04**
	1	Completion Code

20 05 - Get Firmware Selector

This command returns the current firmware selector setting.

Request Data	-	**20** NetFnlLUN: Firmware
	-	**05** CMD : Command Group Firmware
Response Data	-	**24**
	-	**05**
	1	Completion Code
	2	Next Boot Selector: 0 = Auto (Select EEPROM with highest firmware version.) 1 = low EEPROM 2 = high EEPROM 3 = Auto oldest version (Select EEPROM oldest firmware version.) 4 = MRP (Select most recently programmed firmware.) 5 = LRP (Select least recently programmed firmware.)
	3	Running Selector; tells which firmware is currently running: 1 = low EEPROM 2 = high EEPROM

C0 19 - Get Remote Storage Connection or Status

Depending on the parameters passed, this command returns information on

– whether any Remote Storage connections are available,
– the status and type of any Remote Storage connection(s).

If *Request Data 1* is set to "1", the command returns information as to whether storage media are connected as Remote Storage.

Request Data	-	**C0** NetFnlLUN: OEM
	-	**19** CMD : Command Group Firmware
	1	01
	2	00
	3	00
Response Data	-	**C4**
	-	**19**
	1	Completion Code
	2	**01**
	3	**00: No** **01: Yes, connected**
	4	**00**
	5	**00**

If *Request Data 1* is set to “2”, the command returns information on the status and type of any Remote Storage connection(s).

Request Data	-	**C0** NetFnlLUN: OEM
	-	**19** CMD : Command Group Firmware
	1	02
	2	00
	3	00 = Connection 0 01 = Connection 2
Response Data	-	**C4**
	-	**19**
	1	Completion Code
	2	**02**
	3	**00**
	4	**00**
	5	**00 = Invalid / unknown** **01 = idle** **02 = Connection Attempt pending** **03 = Connected** **04 = Connection Attempts retries exhausted / failed** **05** = **Connection lost** **06** = **Disconnect pending**
	6	00 **= Invalid / unknown** **01 = Storage Server / IPMI** **02 = Applet** **03 = None / Not connected**

C0 1A - Set Video Display On/Off

This command allows you to switch the local console on or off.

Request Data	-	**C0** NetFnlLUN: OEM
	-	**1A** Cmd : Command Group Fan Test
	1	00 = Set Video Display On 01 = Set Video display Off
Response Data	-	**C4**
	-	**1A**
	1	Completion Code

12.1.2.6 BIOS-specific commands

F1 09 - Get BIOS POST State

This command provides information whether BIOS is in POST.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**F1** Cmd : Command Group BIOS
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS Byte first
	4	**09** Command Specifier
Response Data	-	**BC**
	-	**F1**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS Byte first
	5	[7:1] - reserved [0] - BIOS POST State : 0 = BIOS is not in POST 1 = BIOS is in POST

F1 15 - Get CPU Info

This command returns CPU-internal information. The iRMC gets this information from the BIOS during the POST phase.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**F1** Cmd : Command Group BIOS
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS Byte first
	4	**15** Command Specifier
	5	Socket Number (0-based) of the CPU
Response Data	-	**BC**
	-	**F1**
	1	**Completion Code:** 01 = Unpopulated CPU Socket
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS Byte first
	5:6	CPU ID, LS Byte first
	7	Platform ID
	8	Brand ID
	9:10	Maximal Core Speed of the CPU [MHz], LS Byte first
	11:12	Intel Qickpath Interconnect in Mega Transactions per second, LS Byte first
	13	T-Control Offset
	14	T-Diode Offset
	15	CPU data Spare
	16:17	Record ID CPU Info SDR, LS Byte first
	18:19	Record ID Fan Control SDR, LS Byte first
	20:21	CPU ID High Word, LS Byte first (0 if none)

12.1.2.7 iRMC S4-specific commands

F5 10 - Get System Status

This command returns a variety of internal information on the system such as the power state, error status, etc.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**F5** Cmd : Command Group Memory
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**10** Command Specifier
	5:8	**Timestamp**
Response Data	-	**BC**
	-	**F5**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	5	**System Status** (For details see below.)
	6	**Signaling** (For details see below.)
	7	**Notifications** (For details see below.)
	8	**POST Code**

The Timestamp is only relevant for evaluating the *Notifications* Byte.

System Status

Bit 7 - System ON

Bit 6 -

Bit 5 -

Bit 4 - SEL entries available

Bit 3 -

Bit 2 - Watchdog active

Bit 1 - Agent connected

Bit 0 - Post State

Signaling

Bit 7 - Localize LED

Bit 6 -

Bit 5 -

Bit 4 -

Bit 3 - CSS LED

Bit 2 - CSS LED

Bit 1 - Global Error LED

Bit 0 - Global Error LED

Notifications

Bit 7 - SEL Modified (New SEL Entry)

Bit 6 - SEL Modified (SEL Cleared)

Bit 5 - SDR Modified

Bit 4 - Nonvolatile IPMI Variable Modified

Bit 3 - ConfigSpace Modified

Bit 2 -

Bit 1 -

Bit 0 - New Output on LocalView display

F5 12 - Get EEPROM Version Info

This command returns information on the current versions (bootloader, firmware and SDR) stored in the EEPROM(s).

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**F5** Cmd : Command Group Memory
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**12** Command Specifier
	5	EEPROM# 00=EEPROM 1; 01=EEPROM 2
Response Data	-	**BC**
	-	**F5**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	5	**Status** 00=Checksum Error Runtime FW, 01=OK
	6	**Major FW Revision** Binary coded
	7	**Minor FW Revision** BCD coded
	8:10	**Aux. FW Revision** Binary coded (major/minor/res.)
	11	**Major FW Revision** ASCII coded letter
	12	**Major SDRR Revision** BCD coded
	13	**Minor SDRR Revision** BCD coded
	14	**SDRR Revision Char.** ASCII coded letter
	15	**SDRR-ID** LSB binary coded
	16	**SDRR-ID** MSB binary coded
	17	**Major Booter Revision** Binary coded
	18	**Major Booter Revision** BCD coded
	19:20	*Aux. Booter Revision* Binary coded (major/minor)

F5 42 - Get HDD lightpath status (Component Status Signal Read)

This command returns information on the state of a Hard Disk Drive (HDD) slot.

Request Data	-	**B8** NetFn|LUN: OEM/Group
	-	**F5** Cmd : Command Group iRMC
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS Byte first
	4	**42** Command Specifier
	5	**Entity ID** (*Table 37-12* of IPMI 1.5 Spec.) of Component whose Status Signal is to be read.
	6	**Entity Instance** (0-based) of Component whose Status Signal is to be read.
	7	**Sensor Type** (*Table 36-3* of IPMISpec.) of the Sensor which reports the Status of the Component to which the Status Signal is associated.
	(8)	Option (optional) Bit 7:2 - Reserved Bit 1 :Completion Code 0x02 suppressed Bit 0 - 1 : Return ID String of Component Status Sensor
Response Data	-	**BC**
	-	**F5**
	1	**Completion Code:** 01= Status Signal not available 02 = Component not present
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS Byte first
	5	**Signal Status:** 00 = ok 01 = Identify 02 = Prefailure Warning 03 = Failure
	6	**CSS and Physical LED available:** Bit 6:0 - 0= No physical LED available Bit 6:0 > 00 = Physical LED available, Single or Multiple Color, Code Bit 7 = 0: No CSS Component Bit 7 = 1: CSS Component
	(7)	Length of ID String of Component Status Sensor (only present if Bit 0 in Request Byte 8 is set)
	(8 .. m)	Length of ID String of Component Status Sensor in ASCII chasracters (only present if Bit 0 in Request Byte 8 is set)

F5 43 - Get SEL entry long text

This command translates a given SEL entry into long text.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**F5** Cmd : Command Group iRMC
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS Byte first
	4	**43** Command Specifier
	5:6	**Record ID** of SEL record, LS Byte first 0x0000: get first record 0xFFFF: get last record
	7	**Offset** in response SEL text
	8	**MaxResponseDataSize** size of *Converted SEL data* (16:n) in response
Response Data	-	**BC**
	-	**F5**
	1	Completion Code:
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS Byte first
	5:6	Next Record ID
	7:8	**Actual Record ID**
	9	**Record type**
	10:13	**Timestamp**
	14	**Severity:** Bit 7: 0 = No CSS component 1 = CSS component Bit 6-4: 000 = INFORMATIONAL 001 = MINOR 010 = MAJOR 011 = CRITICAL 1xx = Unknown' Bit 3-0: reserved, read as 0000
	15	**Data length** of the whole text
	16:n	**Converted SEL data** requested part (n = 16 + MaxResponseDataSize - 1)
	n + 1	**String Terminator** trailing '\0' character

F5 45 - Get SEL Entry Text

This command translates a given System Event Log SEL entry into ASCII text.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**F5** Cmd : Command Group iRMC
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS Byte first
	4	**45** Command Specifier
	5:6	**Record ID** of SDR, LS Byte first
Response Data	-	**BC**
	-	**F5**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS Byte first
	5:6	**Next Record ID**
	7:8	**Actual Record ID**
	9	**Record type**
	10:13	**Timestamp**
	14	**Severity:** Bit 7: 0 = No CSS component 1 = CSS component Bit 6-4: 000 = INFORMATIONAL 001 = MINOR 010 = MAJOR 011 = CRITICAL 1xx = Unknown' Bit 3-0: reserved, read as 0000
	15	**Data length**
	16:35	**Converted SEL data**

F5 B0 - Set Identify LED

This command allows you to switch the Identify LED (blue) of the server on and off. In addition, you can set and read the GPIOs that are directly connected to the Identify LED.

You can also switch the Identify LED on and off using the Identify switch on the server.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**F5** Cmd : Command Group BMC
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**B0** Command Specifier
	5	**Identify LED:** 0: Identify LED off 1: Identify LED on
Response Data	-	**BC**
	-	**F5**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first

F5 B1 - Get Identify LED

This command returns information on the status of the Identify LED (blue) of the server.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**F5** Cmd : Command Group BMC
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**B1** Command Specifier
Response Data	-	**BC**
	-	F5
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	5	State of Identify LED (only bit 0 is relevant)

F5 B3 - Get Error LED

This command returns information on the status of the server's Global Error LED (red) and CSS LED (yellow). The Global Error LED indicates the most serious error status of the components. The CSS LED indicates, whether the customer himself can rpair the fault.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**F5** Cmd : Command Group BMC
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**B3** Command Specifier
Response Data	-	BC
	-	F5
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	5	**State of Error LED:** 0 : CSS off / GEL off 1 : CSS off / GEL on 2 : CSS off / GEL blink 3 : CSS on / GEL off 4 : CSS on / GEL on 5 : CSS on / GEL blink 6 : CSS blink / GEL off 7 : CSS blink / GEL on 8 : CSS blink / GEL blink

F5 DF - Reset Nonvolatile Cfg Variables to Default

This command forces all non-volatile IPMI settings to be set to default values.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**F5** Cmd : Command Group BMC
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**DF** Command Specifier
	5:8	43 4C 52 AA = 'CLR'0xaa: Security Code
Response Data	-	**BC**
	-	**F5**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first

F5 E0 - Reset ConfigSpace variables to default

This command forces all Configuration Space variables to be set to default values.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**F5** Cmd : Command Group BMC
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**E0** Command Specifier
	5:8	43 4C 52 AA = 'CLR'0xaa: Security Code
Response Data	-	**BC**
	-	**F5**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first

F5 F8 - Delete User ID

The system supports up to 16 users. This command allows individual iRMC S4 users to be deleted.

CAUTION!

The system can no longer be managed if all iRMC users are deleted.

Request Data	-	**B8** NetFnlLUN: OEM/Group
	-	**F5** Cmd : Command Group BMC
	1:3	**80 28 00** IANA-Enterprise-Number FTS, LS byte first
	4	**F8** Command Specifier
	5:8	User ID (1-16)
Response Data	-	**BC**
	-	**F5**
	1	Completion Code
	2:4	**80 28 00** IANA-Enterprise-Number FTS, LS byte first

12.2 Configuring the iRMC via SCCI and scripted configuration

This section provides information on the following topics:

– How to use an SCCI (**S**erverView **C**ommon **C**ommand **I**nterface) compliant interface for configuring the iRMC.

– Scripted configuration of the iRMC

12.2.1 iRMC configuration data

Please note that the interface described below is mainly for remote configuration and is **not** an SCCI implementation. It only uses the SCCI command and configuration definitions and the SCCI file format.

12.2.1.1 Overview

The iRMC stores internal configuration data in separate sections of its NVRAM (Non-volatile RAM):

– FTS-specific ConfigSpace data, which is addressed by the firmware via an internal description or mapping table.

– Original, manufacturer-specific OMD NVCFG data, which is accessed by offset definitions.

Some configuration data from the original OMD NVCFG data is internally mapped by the firmware to be accessible via ConfigSpace access methods. For instance, DNS servers and DNS configuration of the iRMC can be accessed both via IPMI OEM LAN configuration parameters and via ConfigSpace. Both methods access the same low level data structures in the original NVCFG area.

Non-iRMC-specific ServerView software components (e.g. the ServerView Agents or the Server Configuration Manager) in some cases also map standard IPMI related commands and configuration items, such as standard IPMI user configuration or IPv4 network configuration. This implements an abstraction level between the IPMI BMC layer and higher software levels.

The SCCI is a generic application programming interface (API) defined by Fujitsu for different Server Management Controller hardware as well as Server Management software (e.g. ServerView Agents). It can be easily extended to cover new commands or new configuration items. For an architectural overview of the SCCI, see the online help of the ServerView agents.

The iRMC supports remote configuration and limited scripting via the */config URL* in the iRMC S4.

Benefits of remote iRMC configuration via web-based access

Remote configuration of the iRMC via web-based access provides the following benefits:

– Uses HTTP POST operation for uploading files onto the iRMC. No special tool is required. Any generic tool or scripting environments supporting authenticated HTTP POST operations can be used. Sample scripts can be found on the ServerView Suite DVD 2.

– Uses built-in authentication and authorization methods of the iRMC Web server.

– Supports HTTP 1.1 Basic and Digest authentication based on RFC 2617 with local iRMC user accounts.

– Features optional built-in strong encryption with standard HTTPS-based access.

– Can be used with global user accounts (managed by an LDAP directory service) and HTTP 1.1 Basic authentication.

  If HTTP 1.1 Basic authentication is used, it is recommended that, for encryption and confidentiality reasons, you use the HTTPS protocol to protect the username/password combination.

– Uses a configuration file format that is based on XML. You have the option to edit the file manually, or to export it from a reference installation or from the Server Configuration Manager.

  The configuration file can be re-used with other SCCI based installation methods (e.g. Server Configuration Manager).

– Can be easily extended to new configuration items and new supported SCCI commands.

12.2.1.2 SCCI file format

The format of the XML configuration file (*.pre*) used is taken from the setup configuration help file that is installed together with the ServerView agents on Windows platforms. A copy of this description with iRMC S4-specific notes is shown below.

The configuration file is a based on XML syntax:

– Each configuration setting consists of a simple XML fragment starting with a "<CMD>" tag.

– The complete sequence of configuration settings is enclosed in a pair of tags "<CMDSEQ> and </CMDSEQ>".

The following is an example of a typical command sequence comprising two configuration settings:

```
<CMDSEQ>
<CMD Context="SCCI" OC="ConfigSpace" OE="3800" OI="0"
Type="SET">
<DATA Type="xsd::hexBinary" Len="1">04</DATA>
<CMD Context="SCCI" OC="ConfigSpace" OE="3801" OI="0"
Type="SET">
<DATA Type="xsd::hexBinary" Len="1">00</DATA> </CMD>
</CMDSEQ>
```

The *Context* parameter is used internally to select the provider of the operation. Currently, SCCI is the only supported provider.

Parameters of SCCI provider-specific commands

The following SCCI-provider-specific commands are available:

Operation Code (OC)
: Hex value or string specifying the command / operation code.

  > **i** The iRMC only supports a limited set of SCCI commands. For a list of supported commands see table "SCCI commands supported by the iRMC" on page 460

Operation Code Extension (OE)
: Hex value for extended operation code. Default: OE=0

  For ConfigSpace Read-/Write operations, this value defines the ConfigSpace ID.

Object Index (OI)
: Hex value selecting an instance of an object. Default:OI=0"

Operation Code Type (Type)
: For configuration settings, the values GET (read operation) and SET (write operation) are supported. Default: Type=GET

  > **i** SET operations require data. For specifying the appropriate data type, use the *Data (DATA)* parameter described below.

Cabinet Identifier (CA)
: Allows you to select an extension cabinet and use its cabinet ID number.

  > **i** Do **not** use this parameter to request for the system cabinet!

Data (DATA)
: If a SET parameter (write operation) is specified: Data type (Type parameter), and, in some cases, data length (LEN parameter) are required.

  Currently, the following data types are supported:

  – xsd::integer

    Integer value

    Example

    ```
    <DATA Type="xsd::integer">1234</DATA>
    ```

– `xsd::hexBinary`

  Stream of bytes. Each byte is coded in two ASCII characters. Use the `Len` parameter as shown in the example below to specify the length of the stream (i.e. the number of bytes).

  The data type `xsd::hexBinary` can be used without any restriction. The number of bytes used is determined by the *Len* parameter.

  Example

  A stream of four bytes `0x00 0x01 0x02 0x04` will be coded as the following ASCII stream:

  ```
  <DATA Type="xsd::hexBinary" Len="4">0001020304</DATA>
  ```

– `xsd::string`

  Normally used for the transfer of strings. Additionally, the `string` type can be used for IPv4 addresses and MD5-based user passwords. In this case, the string data is internally converted to the accepted target format.

  Transferring encrypted data

  A Fujitsu-proprietary data encryption is supported for some sensitive data such as user or service (LDAP/SMTP) access passwords, or the AVR license key of the iRMC. You can use the *iRMC_PWD.exe* program for encrypting password data (see section "Generating encrypted passwords with iRMC_PWD.exe" on page 464).

  `Encrypted="1"` must be set in the `<DATA>` tag to indicate that the data to be written is encrypted.

  Examples

  Transferring the string "Hello World":

  ```
  <DATA Type="xsd::string">Hello World</DATA>
  ```

  Transferring a password as clear (readable) text:

  ```
  <DATA Type="xsd::string">My Readable Password</DATA>
  ```

  Transferring an encrypted password:

  ```
  <DATA Type="xsd::string"
  Encrypted="1">TpVlTJwCyHEIsC8tk24ci83JuR9l</DATA>
  ```

Transferring the IPv4 address "192.23.2.4"

```
<DATA Type="xsd::string">192.23.2.4</DATA>
```

CAUTION!

The `xsd::string` data type is restricted to readable strings, IP addresses and MD5-based user passwords.

For all other data, the `xsd::hexbinary` data type must be used!

Do not directly specify the characters ä, ö, ü, etc. in strings unless they are actually needed by the using application!

Both SCCI and the ConfigSpace interface do not store any character encoding information. Thus, any non-US-ASCII-characters will be interpreted internally by the using application and therefore should be avoided.

If you do actually need to specify special characters, make sure that you edit and save your file in UTF-8 format including the correct BOM.

Command Status (`Status`)

After the configuration settings are transferred, the `Status` contains the result of the operation. If the operation has completed successfully, the value `0` is returned.

For a specification of all public configuration settings (ConfigSpace) see the *SCCI_CS.pdf* file, which is distributed with the PRIMERGY Scripting Toolkit.

12.2.1.3 Restrictions

All commands specified in the *.pre* file are normally executed sequentially. The following are exemptions from this rule:

– To prevent broken network connectivity, commands for IPv4 and VLAN network configuration are executed at the end of a command sequence.

– Currently, IPv6 configuration is limited to the configuration of the non-volatile IPv6 configuration parameters.

  As a workaround, you can proceed as follows:

  1. Arrange your script as follows:

     a) At the beginning of the script: Disable IPv6.

     b) Configure IPv6 parameters.

     c) At the end of the script: Enable IPv6

  2. Submit the script from an IPv4 address.

– The SSL certificate and the related matching private key are executed at the end of a command sequence. Both components must be present in the same *.pre* file and are checked for matching each other.

– If a power management operation for the managed server or a reboot of the iRMC is required or desired:

  It is recommended (but not required) to run these commands in separate command files. You can achieve this e.g. by splitting the configuration and power management operations into separate tasks.

– Optional time delays between the execution of consecutive commands must implemented outside the script.

  For example, you can achieve this as follows:

  1. Divide the script appropriately into separate scripts.

  2. Use the functional range of the client to insert time delays between sending the individual files.

12.2.1.4 Exporting / importing configuration data from / on the iRMC S4

The *Save iRMC S4 Firmware Settings* page of the iRMC web interface allows you to save (export) the current iRMC configuration data in a configuration file (*.pre*). As well, you can import iRMC configuration data from an existing configuration file (*.pre*), i.e. load configuration data onto the iRMC (for details, see section "Save Configuration - Save iRMC S4 Firmware Settings" on page 181.)

To import an iRMC configuration, you can alternatively send the corresponding SCCI command file to the */config URI* of the iRMC via the HTTP POST operation.

12.2.2 Scripted configuration of the iRMC

This section describes provides information on the following topics:

– SCCI commands supported by the iRMC.

– Using various script languages for scripted configuration of the iRMC.

– Generating encrypted passwords with the *iRMC_PWD.exe* program.

12.2.2.1 List of SCCI commands supported by the iRMC

The SCCI commands supported by the iRMC are shown in table 25:

SCCI OpCode	SCCI Command String	Description
0xE002	ConfigSpace	ConfigSpace Write
0x0111	PowerOnCabinet	Power On the Server
0x0112	PowerOffCabinet	Power Off the Server
0x0113	PowerOffOnCabinet	Power Cycle the Server
0x0204	ResetServer	Hard Reset the Server
0x020C	RaiseNMI	Pulse the NMI (Non Maskable Interrupt)
0x0205	RequestShutdownAndOff	Graceful Shutdown, requires running Agent
0x0206	RequestShutdownAndReset	Graceful Reboot, requires running Agent
0x0209	ShutdownRequestCancelled	Cancel a Shutdown Request
0x0203	ResetFirmware	Perform a BMC Reset
0x0250	ConnectRemoteFdImage	Connect or Disconnect a Floppy Disk image on a Remote Image Mount (NFS or CIFS Share)
0x0251	ConnectRemoteCdImage	Connect or Disconnect a CD/DVD .iso image on a Remote Image Mount (NFS or CIFS Share)
0x0252	ConnectRemoteHdImage	Connect or Disconnect a Hard Disk image on a Remote Image Mount (NFS or CIFS Share)

Table 25: SCCI commands supported by the iRMC

12.2.2.2 Scripting with cURL

The open source command-line tool cURL allows you to transfer data specified with URL syntax. You can download the latest version of the source code as well as precompiled versions for different operating systems from *http://curl.haxx.se/*.

The following are some examples of how to use curl to send a configuration file to the iRMC.

For details on the curl command line options please refer to the curl documentation.

– HTTP Access with Basic Authentication (default) and the default iRMC S4 admin account:

```
curl --basic -u admin:admin --data @Config.pre
http://<iRMC IP address>/config
```

– HTTP Access with Digest Authentication and the default iRMC admin account

```
curl --digest -u admin:admin --data @Config.pre
http://<iRMC IP address>/config
```

– HTTPS Access with no certificate check (-k) and Digest authentication and the default iRMC admin account:

```
curl --digest -k -u admin:admin --data @Config.pre
https://<iRMC IP address>/config
```

– HTTPS Access with an LDAP user account.

  Please note, that for LDAP users you have to specify Basic authentication

```
curl --basic -k -u LDAPuser:LDAPpassword --data @Config.pre
https://<iRMC IP address>/config
```

12.2.2.3 Scripting with Visual Basic (VB) Script

The following VB script sends a configuration file to the iRMC:

```
IP_ADDRESS = "<iRMC IP address>"
USER_NAME  = "admin"
PASSWORD   = "admin"

FILE_NAME  = ".\\ConfigFile.pre"

Const ForReading = 1
Set objFSO = CreateObject("Scripting.FileSystemObject")
Set objFile = objFSO.OpenTextFile(FILE_NAME, ForReading)

' ---------------------------------------------------------------
On Error Resume Next

Set xmlHttp = CreateObject("Microsoft.XMLHTTP")
xmlHttp.Open "POST", "http://" & IP_ADDRESS & "/config", False,
USER_NAME, PASSWORD
xmlhttp.setRequestHeader "Content-Type", "application/x-www-
form-urlencoded"
xmlHttp.Send objFile.ReadAll

Wscript.Echo xmlhttp.responsexml.xml
```

12.2.2.4 Scripting with Python

```
#!/usr/bin/python3
import sys
import httplib2
from urllib.parse import urlencode

# ============================================================
# iRMC

USER = 'admin'
PWD  = 'admin'
IP_ADDR =  '192.168.1.100'
# ============================================================

h = httplib2.Http()

# Basic/Digest authentication
h.add_credentials(USER, PWD)

def doit(data,ausgabe=sys.stdout):
  try:
    resp, content = h.request("http://%s/config" % IP_ADDR,
    "POST", data)
    if resp['status'] == '200'
      data = content.decode('utf-8')
      print(data,file=ausgabe)
      else:
      print('STATUS:',resp['status'],file=ausgabe)
      print(str(resp),file=ausgabe)
  except Exception as err:
    print('ERROR:',str(err),file=ausgabe)
  print()


# Example 1 - send a configuration file to the iRMC
try:
  data = open('ConfigFile.pre').read()
  doit(data)
except Exception as err:
  print('ERROR:',str(err),file=ausgabe)


# Example 2 - Set Config Space Values
# 0x200 (ConfCabinetLocation) and
# 0x204 (ConfSystemContact) direct from the script
#
LocationContact = '''<?xml version="1.0" encoding="UTF-8"
standalone="yes" ?>
```

```
<CMDSEQ>
  <!-- ConfCabinetLocation -->
  <CMD Context="SCCI" OC="ConfigSpace" OE="200" OI="0" >
    <DATA Type="xsd::string">%s</DATA>
  </CMD>
  <!-- ConfSystemContact -->
  <CMD Context="SCCI" OC="ConfigSpace" OE="204" OI="0" >
    <DATA Type="xsd::string">%s</DATA>
  </CMD>
</CMDSEQ>
'''

doit(LocationContact % ("Ostsee","Kiel"))
```

12.2.2.5 Generating encrypted passwords with iRMC_PWD.exe

The Fujitsu Technology Solutions iRMC password encryption and verification Utility *iRMC_PWD.exe* is a Win32 program allowing you to generate encrypted passwords for use with SCCI scripting. *iRMC_PWD.exe* can be used both to encrypt a single password and to generate a SCCI batch file for scripted configuration.

iRMC_PWD standard command line options

[-h] [-?]
: This help.

[-v]
: Verify an encrypted password string.

[-o] <oid>
: The Object ID for the data to be encrypted.

[-u] <username>
: Username for the given Object ID (optional).

[-p] <password>
: Password for the given Object ID / / encrypted password string to be verified.

[-x] <opCodeExt>
: Opcode extension for the ConfigSpace data to encrypt.

[-p] <password>

Password for the given Object ID.
Default: 1452 (ConfBMCAcctUserPassword)

Supported Values:

1452 - ConfBMCAcctUserPassword

1273 - ConfAlarmEmailSMTPAuthPassword

197A - ConfLdapiRMCgroupsUserPasswd

502 - ConfBmcRadiusSharedSecret

1A52 - ConfBmcRemoteFdImageUserPassword

1A62 - ConfBmcRemoteCdImageUserPassword

1A72 - ConfBmcRemoteHdImageUserPassword

1980 - ConfBMCLicenseKey

iRMC_PWD command line output options

[-b]

Creates the output file as a WinSCU BATCH file.

[-f] <Output File>

Specify the output file name.
Default: *iRMC_pwd.txt*
Default in Batch mode: *iRMC_pwd.pre*

Example

You want to generate a *.pre* file that sets/changes the username to `admin` and the password to `SecretPassword` for the (existing) user with the oid `2`.

To achieve this, enter the following command:

```
iRMC_PWD -o 2 -u admin -p SecretPassword -b
```

iRMC_PWD will generate a *.pre* file with the contents shown in figure 260 on page 466.

```
iRMC_PWD -o 2 -u admin -p SecretPassword -b


<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CMDSEQ>
<!-- "ConfBMCAcctUserName" -->
<CMD Context="SCCI" OC="ConfigSpace" OE="1451" OI="2" Type="SET">
  <DATA Type="xsd::string">admin</DATA>
  <STATUS>0</STATUS>
</CMD>
<!-- "ConfBMCAcctUserPassword" -->
<CMD Context="SCCI" OC="ConfigSpace" OE="1452" OI="2" Type="SET">
  <DATA Type="xsd::string"
Encrypted="1">N2BZd3oLHAgc11pnHCAV9P/ItwRue4qBB3IU7Xsh</DATA>
  <STATUS>0</STATUS>
</CMD>
</CMDSEQ>
```

Figure 260: Contents of the generated .pre file

12.3 iRMC system report

System Report is one of the features provided by PRIME COLLECT. Typically, the information is collected by the ServerView agents running on the host operating system and includes various types of hardware and software information. The collected information includes, among others, iRMC information (sensor, IDPROM/FRU, eventlog) as well as software and drivers installed on the host operating, running processes etc.

Even in cases where ServerView agents are not running, a subset of this information, comprising mainly service incidents, can be made available directly out-of-band from the iRMC.

This section describes:

– Scripted download and automatic evaluation of the iRMC report

– System report items provided by the iRMC.

12.3.1 Scripted download and automatic evaluation of the iRMC report

12.3.1.1 Scripting with cURL

Curl is an open source command line tool for transferring data specified with URL syntax. The latest version of the source code as well as precompiled versions for different operating systems can be downloaded from *http://curl.haxx.se/* The following are some examples of how to retrieve the System Report file with cURL from the iRMC, for details of the cURL command line options please refer to the cURL documentation. As default cURL sends the retrieved data to standard output, you can redirect or pipe it into additional processing or save the retrieved data with the –o outputfilename.

– HTTP access with Digest authentication, the default iRMC admin account and saving (-o) to ‘report.xml’:

```
curl --digest -o report.xml -u admin:admin
http://192.168.1.100/report.xml
```

– HTTPS Access with no certificate check (-k) and Digest authentication and the default iRMC admin account:

```
curl --digest -k -u admin:admin
https://192.168.1.100/report.xml
```

– HTTPS Access with a LDAP user account:

  Please note that, for LDAP users, you have to specify basic authentication since the authentication parameters need to be passed to the LDAP server for verification:

```
curl --basic -k -u LDAPuser:LDAPpassword
https://192.168.1.100/report.xml
```

12.3.1.2 Scripting with Visual Basic

Scripting is also possible with Visual Basic. The following VB script retrieves the report.xml from the iRMC and saves it into a local file, also named report.xml:

```
IP_ADRESSE = "192.168.1.100"
USER_NAME = "admin"
PASSWORD = "admin"
FILE_NAME = ".\\report.xml"
ADDONS = "/report.xml"
' ------------------------------------------------------------------
----------------------------------
On Error Resume Next
Function SaveBinaryData(FileName, ByteArray)
   Const adTypeBinary = 1
   Const adSaveCreateOverWrite = 2

   Dim BinaryStream
   Set BinaryStream = CreateObject("ADODB.Stream")

   BinaryStream.Type = adTypeBinary
   BinaryStream.Open
   BinaryStream.Write ByteArray
   BinaryStream.SaveToFile FileName, adSaveCreateOverWrite
   WScript.Echo "Antwort:" & BinaryStream.Read
End Function

Set xmlHttp = CreateObject("Msxml2.XMLHTTP")
xmlHttp.Open "GET", "http://" & IP_ADRESSE & ADDONS, False,
USER_NAME, PASSWORD
xmlHttp.Send

If InStr(xmlHttp.GetResponseHeader("Content-Type"), "xml") > 0
   Then
      SaveBinaryData FILE_NAME,xmlHttp.ResponseBody
   Else
   Wscript.Echo ADDONS &" not found on " &IP_ADRESSE
End If
```

12.3.2 Information Sections

12.3.2.1 List of supported System Report sections in the XML

Section	SubSection	Remarks/ Limitations
System	BIOS	Only BIOS version string from ConfigSpace
	Processor	
	Memory	
	Fans	
	Temperatures	
	PowerSupplies	
	Voltages	
	IDPROMS	
	SensorDataRecords	
	PCIDevices	Only PCI Vendor and Device Id of cards in slots, no on-board device information
	SystemEventLog	
	InternalEventLog	
	BootStatus	
	ManagementControllers	Only iRMC S4

Table 26: List of supported System Report sections in the XML

12.3.2.2 Summary section

The generated XML contains as first section a summary section with some information about the date and time of the record creation, the current iRMC's IP addresses as well as summary about the number Critical/Major and Warning (Minor) entries in the SystemEventLog section and it has an inventory list of available sections.

Sample output see below:

```
<?xml version="1.0" encoding="UTF-8"?>
<Root Schema="2" Version="97.30F" OS="iRMC"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
   <Summary>
      <Created>
         <IsAdmin>true</IsAdmin>
         <Date>2014/02/05 17:27:15</Date>
```

```
         <BuildDuration>3</BuildDuration>
         <Company>FUJITSU</Company>
         <Computer>iRMCFDAF9F</Computer>
         <OS>iRMC 97.30F SDR: 3.32   ID 0342  TX140S2</OS>
         <Domain></Domain>
         <HostIPv4Address>10.172.103.13</HostIPv4Address>
         <HostIPv6Address>fe80::219:99ff:fefd:af9f</HostIPv6Addr
ess>
      </Created>
      <Errors Count="1">
         <Eventlog>
            <Message>59 important error(s) in event
log!</Message>
         </Eventlog>
      </Errors>
      <Warnings Count="1">
         <Eventlog>
            <Message>23 important warning(s) in event
log!</Message>
         </Eventlog>
      </Warnings>
      <Content>
         <Item Name="System/Bios"></Item>
         <Item Name="System/Processor"></Item>
         <Item Name="System/Memory"></Item>
         <Item Name="System/Fans"></Item>
         <Item Name="System/Temperatures"></Item>
         <Item Name="System/PowerSupplies"></Item>
         <Item Name="System/Voltages"></Item>
         <Item Name="System/IDPROMS"></Item>
         <Item Name="System/SensorDataRecords"></Item>
         <Item Name="System/PCIDevices"></Item>
         <Item Name="System/SystemEventlog"></Item>
         <Item Name="System/InternalEventlog"></Item>
         <Item Name="System/BootStatus"></Item>
         <Item Name="System/ManagementControllers"></Item>
      </Content>
    </Summary>
   <System>
```

12.3.2.3 BIOS

Since the iRMC has no access to the SMBIOS structures of the server, only a very limited subset of information is provided. Sample output see below.

```
<Bios Schema="1">
   <SMBIOS Version="Unknown">
      <Type0 Name="BIOS Information" Type="0">
```

```
         <BiosVersion>V4.6.5.4 R1.0.0 for D3239-
A1x</BiosVersion>
      </Type0>
   </SMBIOS>
</Bios>
```

12.3.2.4 Processor

The information generated is based on the F113 and F115 OEM IPMI cmd and is compliant with the CDiagReport.h. Sample Output see below.

```
<Processor Schema="1">
   <CPU Boot="true">
      <SocketDesignation>CPU</SocketDesignation>
      <Manufacturer>Intel</Manufacturer>
      <Model>
         <Version>Intel(R) Xeon(R) CPU E3-1270 v3 @
3.50GHz</Version>
         <BrandName>Intel(R) Xeon(R) CPU E3-1270 v3 @
3.50GHz</BrandName>
      </Model>
      <Speed>3500</Speed>
      <Status Description="ok">1</Status>
      <CoreNumber>4</CoreNumber>
      <LogicalCpuNumber>8</LogicalCpuNumber>
      <Level1CacheSize Unit="KByte">256</Level1CacheSize>
      <Level2CacheSize Unit="KByte">1024</Level2CacheSize>
      <Level3CacheSize Unit="KByte">8192</Level3CacheSize>
   </CPU>
</Processor>
```

12.3.2.5 Memory

The information generated is retrieved by decoding the memory SPD data as well as evaluating the memory status and configuration sensors and is compliant with the CDiagReport.h implementation. Sample Output see below.

```
<Memory Schema="2">
   <Modules Count="4">
      <Module Name="DIMM-2A" CSS="true">
         <Status Description="empty">0</Status>
      </Module>
      <Module Name="DIMM-1A" CSS="true">
         <Status Description="ok">1</Status>
         <Approved>false</Approved>
         <Size Unit="GByte">2</Size>
         <Type>DDR3</Type>
```

```
         <BusFrequency Unit="MHz">1600</BusFrequency>
         <SPD Size="256" Revision="1.2" Checksum="true">
            <Checksum>
               <Data>33879</Data>
               <Calculated>33879</Calculated>
            </Checksum>
            <ModuleManufacturer>SK Hynix</ModuleManufacturer>
            <ModuleManufacturingDate>2013,4</ModuleManufacturing
             Date>
            <ModulePartNumber>HMT325U7EFR8A-PB
            </ModulePartNumber>
            <ModuleRevisionCode>12372</ModuleRevisionCode>
            <ModuleSerialNumber
AsString="4C633E39">1281572409</ModuleSerialNumber>
            <ModuleType>UDIMM</ModuleType>
            <DeviceType>DDR3_SDRAM</DeviceType>
            <DeviceTechnology>256Mx8/15x10x3</DeviceTechnology>
            <BufferedRegistered>None</BufferedRegistered>
            <BusFrequency Unit="MHz">DDR1600</BusFrequency>
            <VoltageInterface>1.35V/1.5V</VoltageInterface>
            <BurstLengths>8;(4);</BurstLengths>
            <CASLatencies>6;7;8;9;10;11;</CASLatencies>
            <DataWith>72</DataWith>
         </SPD>
         <ConfigStatus Description="Normal">0</ConfigStatus>
      </Module>
```

12.3.2.6 Fans

Fan data is retrieved/generated from FAN sensors and is compliant with the *CDiagReport.h* implementation. Sample Output see below.

```
<Fans Schema="1" Count="2">
   <Fan Name="FAN1 SYS" CSS="true">
      <Status Description="not manageable">5</Status>
   </Fan>
   <Fan Name="FAN PSU" CSS="false">
      <Status Description="not manageable">5</Status>
   </Fan>
</Fans>
```

12.3.2.7 Temperature

The information generated is compliant with the *CDiagReport.h* implementation. Sample Output see below.

```
<Temperatures Schema="1" Count="7">
   <Temperature Name="Ambient" CSS="false">
      <Status Description="ok">6</Status>
      <CurrValue>27</CurrValue>
      <WarningThreshold>37</WarningThreshold>
      <CriticalThreshold>42</CriticalThreshold>
   </Temperature>
   <Temperature Name="Systemboard" CSS="false">
      <Status Description="ok">6</Status>
      <CurrValue>37</CurrValue>
      <WarningThreshold>60</WarningThreshold>
      <CriticalThreshold>65</CriticalThreshold>
   </Temperature>
…
```

12.3.2.8 Power Supplies

The information generated is compliant with the *CDiagReport.h* implementation. Sample Output see below.

```
<PowerSupplies Schema="1" Count="1">
   <PowerSupply Name="PSU" CSS="false">
      <Status Description="ok">1</Status>
   </PowerSupply>
</PowerSupplies>
```

12.3.2.9 Voltages

The information generated is compliant with the *CDiagReport.h* implementation. Sample Output see below.

```
<Voltages Schema="1" Count="11">
   <Voltage Name="BATT 3.0V" CSS="false">
      <Status Description="ok">1</Status>
      <CurrValue>3.24</CurrValue>
      <NomValue>3.00</NomValue>
      <Thresholds>
         <MinValue>2.02</MinValue>
         <MaxValue>3.50</MaxValue>
      </Thresholds>
   </Voltage>
```

12.3.2.10 IDPROMS

The information generated is compliant with the *CDiagReport.h* implementation. In addition, the actual name retrieved from the FRU SDR record is provided as “Name” attribute in the instance tag. Since an entry is quite long, for an example please check a generated file.

12.3.2.11 SensorDataRecords

The information generated is compliant with the *CDiagReport.h* implementation. Since an entry is quite long, for an example please check a generated file.

12.3.2.12 PCIDevices

The iRMC does not have any direct access to PCI data and therefore can only report a limited subset on information. This information is based on what the server BIOS has sent with the F119 OEM IPMI cmd and which can be retrieved with the F11A OEM IPMI cmd. Sample Output see below.

```
<PCIDevices Schema="1">
   <Device>
      <ConfigSpace>
         <VendorId>1000</VendorId>
         <DeviceId>005B</DeviceId>
         <SubVendorId>11D3</SubVendorId>
         <SubDeviceId>1734</SubDeviceId>
         <BaseClass>Mass storage controller</BaseClass>
         <SubClass>RAID controller</SubClass>
      </ConfigSpace>
      <Slot>4</Slot>
   </Device>
</PCIDevices>
```

12.3.2.13 SystemEventLog

The information generated is compliant with the *CDiagReport.h* implementation. Sample output see below.

```
<SystemEventlog Schema="1">
   <Entry>
      <Date>2014/02/05 16:48:13</Date>
      <Severity>MINOR</Severity>
      <ErrorCode>19000B</ErrorCode>
      <Message>'DIMM-1B': Non Fujitsu Memory Module detected -
Warranty restricted!</Message>
```

```
      <Data Size="14">
         <HexDump Lines="1" BytesPerLine="14">
            <Line Offset="0">
               <Hex>02 4D 6B F2 52 20 00 04 E1 FE 6F A0 00
03</Hex>
            </Line>
         </HexDump>
      </Data>
   </Entry>
…
```

12.3.2.14 InternalEventLog

The information generated is compliant with the *CDiagReport.h* implementation. Sample Output see below.

```
<InternalEventlog Schema="1">
   <Entry>
      <Date>2014/02/05 15:53:00</Date>
      <Severity>INFO</Severity>
      <ErrorCode>2300B1</ErrorCode>
      <Message>iRMC Browser http connection user 'admin' login
from 10.172.103.28</Message>
   </Entry>
…
```

12.3.2.15 BootStatus

The information generated is compliant with the *CDiagReport.h* implementation. Sample Output see below.

```
<BootStatus Schema="1">
   <PowerOnReason AsString="Power Switch">1</PowerOnReason>
   <PowerOffReason AsString="Software">0</PowerOffReason>
   <PowerFailBehavior AsString="remain
off">1</PowerFailBehavior>
</BootStatus>
```

12.3.2.16 ManagementControllers

Only information about the hosting iRMC is provided. Sample Output see below.

```
<ManagementControllers Schema="1">
   <iRMC Name="iRMC">
      <Firmware>97.30F</Firmware>
      <IPAddress>10.172.103.13</IPAddress>
      <IPSubnetMask>255.255.255.0</IPSubnetMask>
      <IPGateway>10.172.103.1</IPGateway>
      <MACAddress>00-19-99-FD-AF-9F</MACAddress>
      <ManagementLANPort>0</ManagementLANPort>
      <IPNominalSpeed>0</IPNominalSpeed>
   </iRMC>
</ManagementControllers>
```